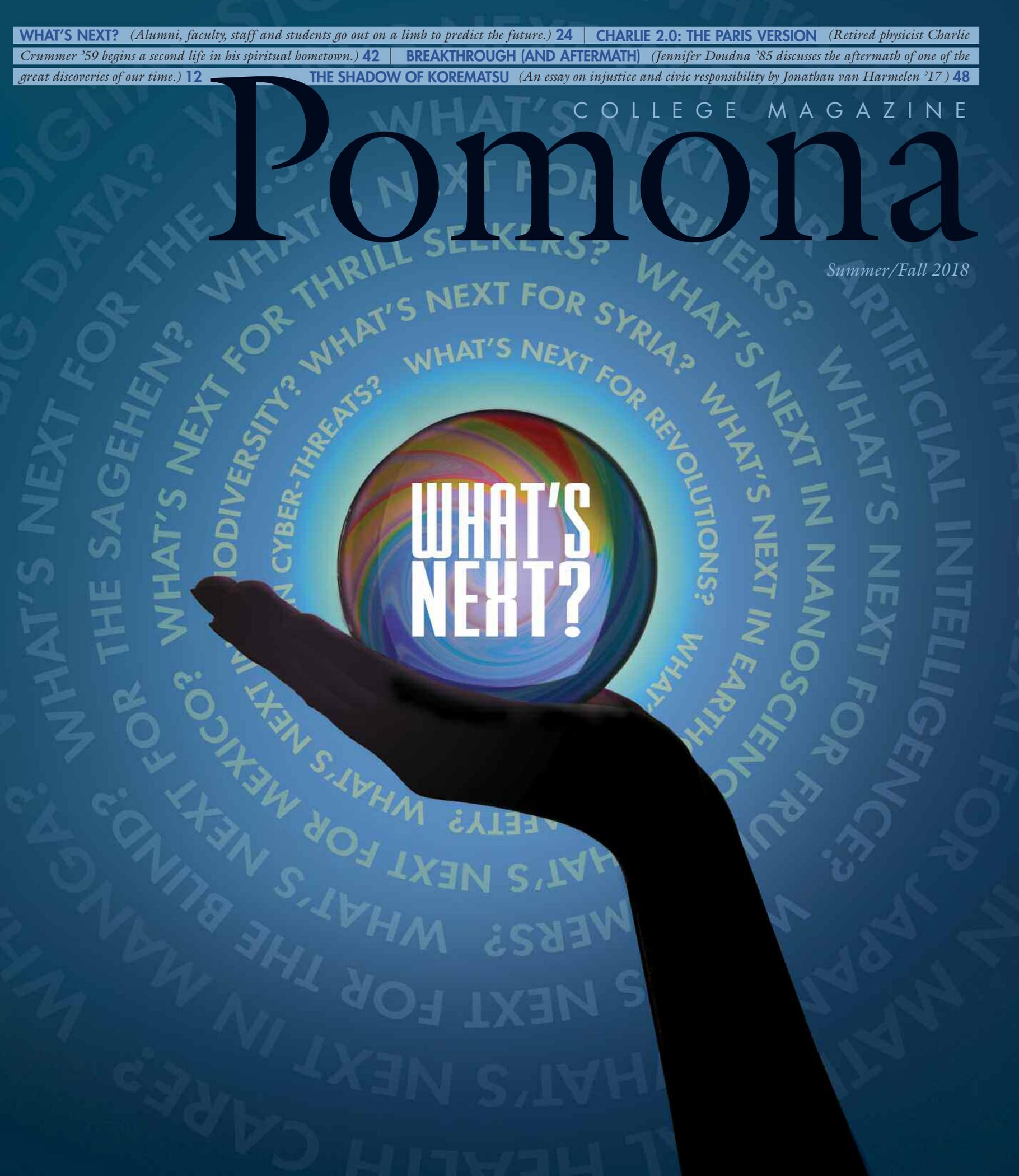


WHAT'S NEXT? (Alumni, faculty, staff and students go out on a limb to predict the future.) 24 | **CHARLIE 2.0: THE PARIS VERSION** (Retired physicist Charlie Crummer '59 begins a second life in his spiritual hometown.) 42 | **BREAKTHROUGH (AND AFTERMATH)** (Jennifer Doudna '85 discusses the aftermath of one of the great discoveries of our time.) 12 | **THE SHADOW OF KOREMATSU** (An essay on injustice and civic responsibility by Jonathan van Harmelen '17) 48

COLLEGE MAGAZINE

Pomona

Summer/Fall 2018



WHAT'S
NEXT?



President G. Gabrielle Starr

sat down recently to share a few thoughts as she prepared to launch a new community-wide strategic planning process that will take place over the coming year, culminating in a plan to guide the College through the next five to seven years.

WHAT'S NEXT FOR POMONA?

PCM: You've said your first year at Pomona has been a year of listening. What have you heard, and are there some important things you've gleaned from it? Any big surprises?

Starr: Well, even though the College has changed a lot over the last 30, 40 or 50 years, there are some things about it that remain the same and should continue. And one of the things that I think is most remarkable is that every Sagehen I've met is defined by being intensely curious. There's a kind of curiosity that is a fundamental characteristic of Pomona alumni and students and faculty, and there's also a persistence to the relationships that people build. I've met with alumni five years out. I've met with alumni 50 years out. And for many of them, their core friendships, the ones that defined who they are, were forged here at the College. The fact that this has persisted is a really wonderful testament to what happens on this campus, and that is something that we have to continue to nurture.

Also, we're an incredibly caring community. Most of us want to serve other people in some significant way in our lives. Whether this happens through teaching or building things or nurturing communities or health care, this is a group of people who really want to be there for others.

"I'VE MET WITH ALUMNI FIVE YEARS OUT. I'VE MET WITH ALUMNI 50 YEARS OUT. AND FOR MANY OF THEM, THEIR CORE FRIENDSHIPS, THE ONES THAT DEFINED WHO THEY ARE, WERE FORGED HERE AT THE COLLEGE."

PCM: Strategic planning implies change, but Pomona is already one of the very best liberal arts colleges in the world. So the obvious question is: Why should we change? Or is the planning process really about something other than change?

Starr: Strategy does not mean simply change. I think a key part of the strategic planning process is setting priorities. Pomona has been really lucky to do everything we do so very well, but as we move into our next phase, we need to say: "We don't have unlimited resources, and the question is: How are we going to use those resources best?" We've done some wonderful things at this college by prioritizing people. That's been in financial aid; it's been in resources for faculty; it's been in benefits. And now it's time for us to say: "Okay, where do we decide we're going to make our next range of investments as a college?"

And while we are, I think, one of the best, if not the best, liberal arts college in the world, "best" is always contextual. And because the world changes around us, we don't want to sit still. So we have to think about how we are helping to develop the best talent that is coming through our doors today and then the next five years and the next five years after that. So that, hopefully, is what planning is going to help us achieve. ▶

PCM: The rapidity of change today has gotten quite daunting. What does that do to a planning process? How far ahead can we legitimately plan?

Starr: I think five to seven years is a reasonable horizon, because one of the things that we do as a college is try to take the long view and not be reactive to everything that comes across the bow. Part of what's supposed to happen in your time at a liberal arts college is for you to slow down and think, and so, even though change happens at a very rapid pace, we have to be thoughtful.

Still, you can rationally look out and say, "We know we have buildings that we need to think about. We know that we have an endowment that we have to take care of. We know that we've got a four-year horizon for just about every new student who comes in." So some time scales are a given. But I think the time of a 10-year strategic plan has probably passed, because the economic conditions change too rapidly, and global conditions change too rapidly to think that far out.

PCM: Are there any past commitments that you think are untouchable because they're so intrinsically a part of who we are?

Starr: I once had a student who did her dissertation on the idea of culture and the origins of that term—coming out of the earth. Culture builds up over time. Every seed that's planted changes it—as does every wind that comes in, every person that walks through—but the culture still rebuilds.

The culture of Pomona that seems most self-perpetuating, and also best, is that sense of a contemplative, sharply focused, curious, residential, broad, liberal arts education. I don't think we would ever want to change that, because the whole point of a liberal arts education is that it allows you to adapt to the world around you.

I think that our commitment to the diversity of human experience should not change because, again, what we are here to do as an educational institution is to make the fullness of human history, of human knowledge, continually available. And that needs to be available to as many of the most talented people as we can properly serve. So our commitment to diversity, I think, can only continue.

And ultimately, we have defined ourselves, in some ways, as an opportunity college, so being able to admit the best students regardless of their need is really important to our future.



"IF WE ARE COMMITTED TO THE ACTUAL HUMAN BEINGS WHO MAKE UP THE WORLD, BEING ABLE TO WELCOME PEOPLE FROM ALL CORNERS OF NOT ONLY OUR OWN COUNTRY BUT OF COUNTRIES FROM AROUND THE WORLD IS REALLY IMPORTANT."

PCM: Of course, the world around us continues to change. What external factors do you see out there going forward that may call for us to evolve?

Starr: I think national changes around immigration are certainly very concerning. Again, if we are committed to the actual human beings who make up the world, being able to welcome people from all corners of not only our own country but of countries from around the world is really important. For students and faculty, knowledge doesn't sit happily within any one country or state, and we want that access to be there. So that's certainly a very important consideration.

There are financial pressures, such as the tax on endowments, that mean that we will have to make some hard choices.

I think that there are certainly possibilities for us to focus on the human side of technology, and how it is that we ethically use the technologies that we create, and how we can design them inclusively, with an eye, as I said, to ethical use. We have lots of faculty members who are focused on that.

And then there are always the uncertainties that come with life. That, again, is the reason that we have a strategic planning process—so that we can take the time to say, "When that fork in the road comes, which of those paths are we going to walk?" So strategic planning is meant to help us manage those changes that we know about, but also externalities that will pop up on their own.

PCM: One of the things that continues to change is the nature of the students who are coming here. They're all talented, but their experiences change. Their expectations in life change. What do you think we should be looking forward to in the next generation of Pomona students?

Starr: We know that there are massive demographic shifts going on in the U.S. and globally right now. There are going to be fewer and fewer college-age students, certainly in the Northeastern U.S. There's going to be some growth in the West and in the South, but there's going to be increased competition for the best students, and we want to continue to be able to draw the very best students that we can.

Many of us are concerned about the effects of lots of social media usage by this particular generation of high school and college students. There's very good psychological evidence that social media can have a strong negative effect on

adolescents. As they come into college, how do we build a community that can move beyond the digital to really focus on the face-to-face? That's going to be a lot of work that we have to do.

It's also true, as Beverly Tatum has pointed out, that this generation of students comes from schools that are much more segregated than any since pretty much *Brown v. The Board of Education*. And that means that when we talk about bringing a diverse group of students together, for many of them, if not most of them, this is the first time that they will be in close proximity to people very unlike themselves, and we are one of the most diverse communities in higher education today. So being intentional about how we bring people together is going to be a major challenge that we have to keep our eye on.

And I think it's a wonderful challenge to have, frankly, because this is the world that we hope to create: a world where everybody can exist in a way that's true to who they are and can work toward their own goals, but also the collective goals of what's good for the world—clean water, good health care, functioning economies, strong schools. All of those things. Being one's true self is not in conflict with being part of a caring community.

PCM: Years ago, I think many of us had the naïve notion that once you built up the diversity of the College it was mission accomplished. Of course, making a place truly inclusive isn't quite that simple. Do you think we have a handle on that now?

Starr: Well, I think we're close. I will say that something that I keep reminding myself is, you know, I'm an African-American woman who was not from a married family and dealt with real prejudice growing up. And I was successful in a much less diverse environment than this, the one that I'm in right now, and so I have something of survivor's bias, in that I was able to make it through despite all sorts of things that didn't exist or were wrong. So I may have a predisposition to say, "Okay, well, you know, let's get on with it."

And I think many people who are successful—which would be just about all of our alumni and all of the people who are in power in the country—may have a kind of survivor's bias. And it's very difficult for us to imagine all those who didn't make it and understand why. There could have been 20 like me, right?—40 like me, 50 like me—if things had been different or we'd had the same support. What would our world look like now?

"BEING ONE'S TRUE SELF IS NOT IN CONFLICT WITH BEING PART OF A CARING COMMUNITY."



So I think we need to really listen to our current students and try to understand how to broaden the path instead of thinking that the path that we were on was fine as it was.

PCM: Like most institutions of higher learning over the past year, Pomona has had some intense discussions about the nature and limits of free speech on campus. How do you think that is going to play into this planning process?

Starr: Well, I think that it will play into it on several levels. One is: We're going to certainly think about our living communities and our learning communities and how we bring intentional dialogue into them. We already have one space that does this in a particular way, which is Oldenborg—where people come with the purpose of talking in a particular language—but how can we take that model of purposeful dialogue and expand it throughout our residential communities so that people can come in and speak intentionally with one another in an open and caring and critical and thoughtful way?

So as we think about residential programming, but also our facilities, how we bring people together is really important. A funny anecdote: When we were talking with students about plans for the new Oldenborg, we asked, "Well, do you want to have separate bathrooms or communal bathrooms?" Now, when I was in college, everybody wanted their own bathroom in a single. That seemed obvious. Why would you want anything different, right? But the students were saying, "No. Now, many of us live in these small rooms by ourselves, and the only place we have surprising, accidental conversations is on the way to the bathroom." And that said something to me about the way in which we have provided so much individualized opportunity that people are yearning for the casual conversation. So how can we think about that?

We also need to think about what changes may be needed in our curriculum. This is a conversation that is deeply in the hands of the faculty as we think it through. How we structure discussions in our classrooms. What new tools we might need for students who may have learned to speak to one another over a screen rather than face-to-face.

PCM: On the subject of the curriculum, do you think the planning process will need to address the exploding interest in STEM fields and the imbalances that grow out of that? ▸

Starr: Yes, that's not going away any time soon. I think we've seen—not just here at Pomona but nationally—a large expansion in the need for computer science instruction, and that's a need we have to meet. And in the allocation of resources and the need for new resources, we need to think about both the curriculum and how we deliver it.

One of the things that I think is very interesting about the way some of our faculty are thinking about technology is that technology is human. It's not something that is outside of the liberal arts tradition at all. In fact, the liberal arts tradition—when we think about what liberal arts meant in their earliest incarnations—was about tools. Mental tools, physical tools and how to be creative in this new technological landscape—those are things that are going to be really important going forward.

We also have great things going on in the humanities, with Kevin Dettmar's Humanities Studio, and in the social sciences, where people like Tahir Andrabi and Amanda Hollis-Brusky are thinking in dramatically new ways about old problems. Our athletics faculty are teaching amazing life skills, as well as nursing leadership and the whole student. We have a lot to be proud of.

PCM: There are a number of small private colleges today that are failing or having to make significant changes to keep their doors open. How does that affect Pomona and small colleges in general as we think about our future?

Starr: I actually think, nationally, the question's not so much size. People talk about a crisis in small liberal arts colleges, and you can look at Antioch or Sweet Briar. Even Oberlin has had some financial challenges in the past few years. However, we just learned this summer that Northwestern, a large research-one university that's highly endowed, is having financial challenges—slowing down on building projects and laying off staff, cutting budgets by as much as 10 percent in some divisions. So it's not size that's the question. It really has to do with how we think about our budgets and the priorities that we're going to set and realizing that while we may have a list of 20 things we want to do, we can't do them all at once. Staging our accomplishments is what's crucial. And just keeping our eyes open, because a lot of problems don't crop up overnight. The question is whether or not you are continually keeping your eye on where difficulties can arise.



“ONE THING THAT IT'S REALLY IMPORTANT FOR FOLKS TO UNDERSTAND IS THAT 10 YEARS AGO, \$19 MILLION IS WHAT WE SPENT ON FINANCIAL AID. NOW WE'RE SPENDING CLOSER TO \$50 MILLION. THAT MONEY HASN'T EMERGED MAGICALLY.”

PCM: I know Pomona is not immune to resource problems, though a lot of people probably think we are. Will the new strategic plan address the way we dedicate resources?

Starr: One thing that it's really important for folks to understand is that 10 years ago, \$19 million is what we spent on financial aid. Now we're spending closer to \$50 million. That money hasn't emerged magically. The money comes primarily from the growth of our endowment. That endowment growth comes from investing, but it also comes from giving, and so when people ask, “Why should we give to Pomona?” it is because that's an extra \$30 million that goes to support every one of those promising students who are able to take advantage of this education. And we don't only support our students with direct aid. The cost of a Pomona education is subsidized for every single student here by the generosity of past and current members of our community.

So one of my goals, personally, but also as part of strategic planning, is to come to a point where we have fully endowed all of our financial aid. So that we are not relying on tuition to help us bring the best students here. And ultimately we're going to be calling on our community to help us to do that, and we will need every single dollar in order to achieve it.

We look at the students who are admitted and the students who applied, and we ask, “Are we losing people because we can't give them enough aid?” We're doing some of that analysis now to see how well we are doing at bringing students who we know would be successful here and helping them to stay, because part of the challenge is that family circumstances change. Parents may go through a divorce, have a health care crisis, an immigration challenge, and then suddenly what was full need only covers half of it or less. So it's a problem I'm glad we have, but it's still a challenge. How will we secure the purse strings to free the minds to thrive?

PCM: You've said you want everyone to feel free to put forward new ideas, big ideas. What are some of the criteria that you'll be using to evaluate those new ideas?

Starr: I think the question is what benefit do they bring and to whom? We want to be able to say, “Are we getting the largest benefit that we can?” Even if it's in one small area.

As a liberal arts college, we have to continue to prioritize our students. We are here to teach them. Faculty research, though, is a really important part of that because the curiosity that defines Pomona has to be fed, and research is one way that we feed that curiosity.

And we're going to have to make decisions. For example, should every single person have a research opportunity in the summer, or should we think about research as a year-round experience? How do we think about prioritizing investments in health? How can we best serve the students who are here? If it means that we can't, for example, have perfect, full-time medical care all year round, then maybe we need to have fewer people on campus in the summer.

There are going to be all sorts of trade-offs that we're going to have to consider, but what we want is to know that we're benefitting our students with every dollar that we spend. We want to know that we're retaining and attracting the best faculty and staff, and we want to know that our students are going off to better themselves and to better the world. Those are the three things that are the ultimate criteria we have to judge anything by.

PCM: Pomona has never intentionally grown its enrollment, but as a practical matter, there has been slow, incremental growth over the decades. Should the College be more intentional about how it grows?

Starr: Absolutely. There are several important questions we should be asking. One is: If we think we're doing this better than anybody else, is it morally acceptable to us to do it at this particular scale? And the question that I always want us to ask is: Who are we missing, and are we comfortable with that?

And there are different ways for thinking about this. Would we want to bring in more international students? Exchange programs for a year? That's one way of thinking about who we might be missing. Would we want to have more robust exchange programs with other colleges as a way of thinking about who we're missing? Historically, Pomona has grown by founding new colleges. That was the model that we took. We said, “No, we're not just going to get bigger and bigger.”

We don't seek to educate 10,000 people here. That's not who we are. But what size would allow us to say, “We're doing the most for the world in the best way we think we can?”



“WHAT WE WANT IS ABOUT NOW. WHAT WE HOPE IS ABOUT THE FUTURE, AND SO HOPE IS KNOWING YOU'RE NOT GOING TO GET EVERYTHING OUT OF IT, BUT STILL BEING ENTHUSIASTIC AND OPTIMISTIC ABOUT THE NEXT STEPS THAT WE'RE GOING TO TAKE.”

So we should talk about it. However, serving our students requires a ratio of faculty to students that is small, and I believe in that. So if we ever were to increase the size of our student body, the size of our faculty would have to increase too.

PCM: Are there obvious issues or opportunities that need to be addressed in the planning process? What excites or worries you going forward?

Starr: Yeah. I think some of the obvious things are in the physical plant—Rains, Oldenborg and Thatcher are buildings that need attention. We have been a very thoughtful institution in thinking about equity among the students and their experience. So if students in physics have access to great things, students in music should have access to great things. To me, that's quite obvious.

We clearly need to think about financial aid, as I said, and we need to work with the other colleges around health and mental health, as well as preventing sexual violence—I think those are obvious. Asking questions about career outcomes and life outcomes—I think we're definitely going to have to keep an eye on that too.

Beyond that, I'm really excited to see what comes up from the community as people start to think about what we want to be seven years from now. Ten or 11 years from now, looking back, what will we see as the defining experiences of the first-year students that come in between now and the end of the strategic plan? What will be different for them? What can we do to lay a foundation?

There's the old phrase: You plant trees under which other people will sit. That's what this is about. We are going to be planting trees for other people, and that is good gardening.

PCM: Ultimately, what is your best hope for both the strategic planning process and its outcome?

Starr: Ultimately, what I hope is that people enjoy engaging in a constructive, collective visioning of our future, because it's about what we hope. It's not about what we want, you know? What we want is about now. What we hope is about the future, and so hope is knowing you're not going to get everything out of it, but still being enthusiastic and optimistic about the next steps that we're going to take.

So that would be a big win if we come out of this feeling really hopeful about our future. Then it's up to us to do the work. **PCM**

WHAT'S NEXT? (A Thought Experiment)

There was a time, not so very long ago, historically speaking, when everyone assumed the future would look pretty much like the past—if they were lucky. Any sort of significant change was something to be feared and avoided, because it probably meant invasion or plague or something equally likely to send your life up in flames.

The modern concept of progress—the notion that advances in science, culture and social organization are feeding a steady improvement in the human condition—was a product of the Enlightenment and the Industrial Revolution. As an ideology, the cult of progress may have reached its peak in the optimism of middle-class America in the '50s and '60s, when new medicines and a parade of shiny and suddenly affordable labor-saving gadgets seemed to promise an end to drudgery and dread.

But as the pace of change has continued to accelerate, we've become a bit more world-weary about what it all means. The optimism of the '50s and '60s has curdled into fatalism. We expect change—and a lot of it—but we don't necessarily expect progress. We've reverted to our historic default—viewing change with a high degree of trepidation.

Maybe that's why anticipating the next big change has become such a fascination. We've all become futurists of a sort. Not that planning for tomorrow is in any way new. Indeed, some believe the ability to think about the future is what made us human in the first place. But predicting what tomorrow may bring has now become a central facet of our lives.

Did you check the weather forecast this morning to see if you needed an umbrella? Did you read the election polls or watch a TV pundit discuss the possible fallout from a recent Supreme Court decision? Did you put off buying a new computer or a new car because you read that the next iteration will be amazing? Did you, just for fun, fill out a World Cup or Final Four or MLB, NFL or NHL playoff bracket? Did you invest your hard-earned money in a stock you think/hope might be on the rise?

Yeah, so did I.

To do all of this future-gazing, we employ a range of cognitive tools, some more effective than others. We use the science of statistics with a remarkable degree of success—when we do it right. We use deductive reasoning with rather more mixed success. And of course, we use lots of guesswork and magical thinking, with just enough accidental success to make us superstitious.

We're wrong a lot—or else Hillary Clinton would be president, cars would fly through the air, and we'd all be fabulously rich.

So, when we at *PCM* asked Sagehen experts in a variety of disciplines to make some daring predictions about what's next in their fields, our purpose wasn't really to give you a preview of the future, though we hope that you'll take away some interesting ideas of what may be in store for us down the road.

The main reason we sought these predictions, and the reason our experts offered them, was as a kind of thought experiment. Thoughtful, informed predictions tell us as much about the present as they do about the future. Whether or not these predictions turn out to be right, I hope you'll find the reasoning behind them intriguing and enlightening.

Of course, if you shake the dust off this issue of *PCM* a decade from now, you may find that some of these predictions were dead wrong. A few may even seem quaint and funny.

Like the science fiction writers of the '50s whose spacefaring heroes went rocketing about the solar system while navigating with slide rules, sometimes we know something revolutionary is coming, but we pick the wrong revolution.

That's the danger of prediction, even for experts.

—MW

COLLEGE MAGAZINE Pomona

SUMMER/FALL 2018 • VOLUME 54, NO. 3

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Pomona College Magazine
is published three times a year. Copyright 2018 by Pomona College, 550 North College Ave., Claremont, CA 91711.

Pomona College
is an independent liberal arts college located in Claremont, Calif. Established in 1887, it is the founding member of The Claremont Colleges.

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DEPARTMENTS

Home Page
What's Next for Pomona?
Stray Thoughts
What's Next? (A Thought Experiment)

Letter Box
Remembering Martha

Pomoniana
Suits, Shorts and the Working World

Book Shelf 12
Breakthrough (and Aftermath)

New Knowledge 16
From Theory to Practice

How To 18
How to Become a Circus Performer (and a Doctor)

Team Work 20
Going Swimmngly

Picture This 22
A Midsummer Night's Dream

Alumni Voices 48
The Shadow of Korematsu

Bulletin Board 50

Class Notes 51

Obituaries 58

In Memoriam 62
Martha Andresen
Arthur Horowitz

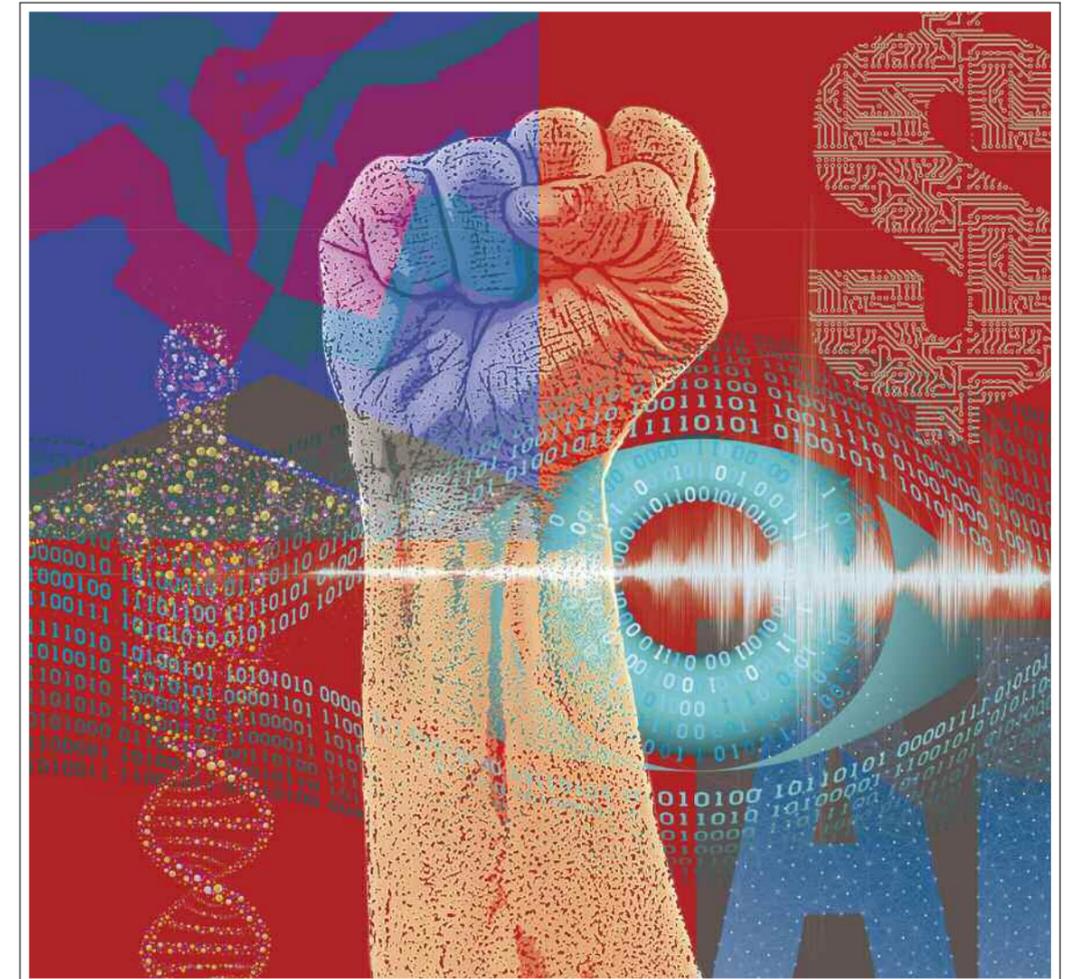
Last Look 64
Alumni Weekend 2018

ON THE COVER

ILLUSTRATION BY MARK WOOD



magazine.pomona.edu



FEATURES

24 What's Next?

PCM looks at what's next for alt rock, artificial intelligence, ballroom dance, big data, biodiversity, California fruit farming, California water, climate action, climate science, cyberthreats, digital storage, earthquake safety, etiquette, funerals, health care apps, Japan, manga, maternity care, mental illness, Mexico, movies, nanoscience, outdoor recreation, revolutions, science museums, social media, solar energy, space exploration, Syria, technology investing, the blind, the sagehen, the United States, thrill seekers and writers.



42 Charlie 2.0 (The Paris Version)

When he retired from his career as a physicist, Charlie Crummer '59 decided it was time to reinvent himself in his spiritual hometown. | BY DAN CARLINSKY

Remembering Martha

If there was one person more than any other who personified what made my experience of Pomona extraordinary, it was Professor Martha Andresen. The brilliance of her intellect was matched by the openness of her heart, and she instilled in me a love of literature that remains alive after more than three decades. I know that I am far from unique in that regard; a number of my classmates who have gone into teaching have spoken of drawing on her example years later. She challenged her students in the best possible way, confronting the flaws and unexamined assumptions in our thinking not to make us feel inferior but to push us to become the better readers, writers and thinkers she believed we could be.

I had the great good fortune of continuing a friendship with Professor Andresen long after I had graduated, corresponding about our lives, art, politics, and most of all writing. We would discuss the books we had recommended to each other, explicating what a particular writer had achieved or failed to achieve. This was never dull academic pontificating, at least on her end; everything she wrote burned with her love of the written word. I have kept every one of those letters from her, and I cherish them.

Pomona will of course go on, with other talented and dedicated professors to lead it into the future, but it will never be the same. Martha Andresen will never be replaced.

—Eric Meyer '87
Lake Oswego, OR

Wilds of L.A.

Thanks to Char Miller for his review of the natural systems that have shaped Los Angeles ("The Wilds of L.A.," *PCM* Spring 2018). But I think he's misreading the city when he calls it "concretized and controlled" and claims that it's "nearly impossible to locate nature" in Los Angeles, except in the earthquakes, fires and floods that he describes in almost apocalyptic tones.

In contrast to many large cities, wildlife and nature are a wonderful, unavoidable part of everyday life in Los Angeles. At our home just two miles north of Downtown L.A., we are frequently visited by coyotes, bobcats, possums, raccoons, skunks and snakes. Birds of prey like red-tailed hawks and screech owls share the trees with woodpeckers, finches, warblers and hummingbirds.

I was especially chagrined that Prof. Miller dismisses the Los Angeles River as an "inverted freeway." The channelized River is indeed a concrete ditch for much of its 52-mile run, but it is also a habitat for much wildlife, especially in the

three "soft-bottom" sections of the river (the Sepulveda Basin, the Glendale Narrows, and the Long Beach Estuary). I recently published a novel set on the L.A. River (*The Ballad of Huck & Miguel*), and the fugitives in the book encounter many of the same animals that I've encountered down there, including herons, egrets, turtles, fish and snakes.

What's more, millions of LA residents live less than an hour away from mountain waterfalls, desert oases and ocean tide pools. For nature lovers who also want access to the cultural diversity (and economic opportunity) of a major urban metropolis, there is no better place to be than Los Angeles.

—Tim DeRoche '92
Los Angeles, CA



A Rural Voice

As a longtime "Rural Voice" from Beaver Dam, Wis., I was especially interested in Mark Wood's piece on Rachel Monroe '06 and Marfa, Texas, because I had just been reading *Possibilities* by Patricia Vigderman. In the chapter "Sebald in Starbucks" she writes about sitting in Starbucks in Marfa and reading W. G. Sebald's *Austerlitz*. She explains how Marfa got its name: In 1881, a Russian woman came with her husband, a railroad overseer, to an unnamed whistle stop. She was reading a novel published the previous year, *The Brothers Karamazov*, in which Dostoevsky gave the name Marfa to the Karamazov family servant—and the unnamed town in Texas got its name. The essay is delightful, as is the book by Vigderman.

—Caroline Burrow Jones '55
Pasadena, CA

Dwyer Passing

Thank you, *PCM*, for publishing news of the passing of former Pomona College Assistant Professor of History John Dwyer. He served at Pomona for only a few years, but the quality of that service was unmatched in my experience. I remain grateful beyond words for his friendship and guidance, for his love of history and Africa and for his wonderful family. Saturday mornings will always bring memories of the Metropolitan Opera broadcast, accompanied by a proper pot of tea. Thank you, Mr. Dwyer, for everything.

—David Beales '73
Elk Grove, CA

A Barnett Fan

Okay, maybe the good part of being a children's author is that Mac Barnett's ('04) kid audience doesn't "fanboy" over him...but the adults reading his books definitely do! I was so psyched to open the Spring 2018 issue to "Ideas That Feel Alive." We are HUGE fans of his work in our family, and we read one of his books with our 2½-year-old Lyra almost every day. We particularly love his collaborations with illustrator Jon Klassen—*Extra Yarn* and *The Wolf, The Duck & The Mouse* are our most beloved favorites. We'd actually just bought *Triangle* for Greg Conroy's (Pomona '00) son Malcolm's third birthday on the same day the *PCM* arrived in the mail! It's super refreshing to read kids' books that are quirky and smart: Barnett doesn't talk down to kids or dumb down his stories, even when they're a little dark or offbeat (in the best way possible). We can't wait to keep reading everything he writes!

—Chelsea Morse '02
Astoria, NY

Kudos for PCM

Pomona College Magazine continues to be readable, relevant and enlightening, thanks to your creativity and hard work. We look forward to each issue and read it cover to cover.

—Bonnie Home '62 and
DeForrest Home '61
San Jose, CA

Alumni, parents and friends are invited to email letters to pcm@pomona.edu or "snail-mail" them to *Pomona College Magazine*, 550 North College Ave., Claremont, CA 91711. Letters may be edited for length, style and clarity.

SUITS, PODCASTS, TRAINS, WASTE-FREE EVENTS AND MORE...

Suits, Shorts and the Working World

At Goldman Sachs in San Francisco, the ambience was formal and there were plenty of suits. At the consulting firm Accenture, one of the leaders wore jeans and sneakers but kept a blazer handy. At another company across the bay, the highest-paid employees wore shorts. (That would be the Golden State Warriors.)

In the working world, clothes are a clue, but they might not tell the whole story. That's just one of the lessons 12 Pomona College sophomores who identify as low-income or first-generation college students learned last fall in an innovative new program. Smart Start Career Fellows is designed to teach students about a working world unfamiliar to many of them. The program concluded in January with a three-day trip to the offices of seven Bay Area businesses.

One of the things Smart Start taught Leisan Garifullina '20, an economics major from Russia, was the difference between business casual and business formal.

"I had this awkward situation last semester where I went to an information session—I think it was Citibank. I showed up in shorts and the nicest, nicest T-shirt that I had," she says. Now, with the help of a stipend from the program, "I have business casual," Garifullina says.

On the Bay Area trip, the students connected with new contacts as well as Pomona College alumni, visiting the offices of Kate Walker Brown '07, an attorney at the National Center for Youth Law; Natalie Casey '17, a software engineer at Salesforce; and Adam Rogers '92, deputy editor at *Wired* magazine. The group also went to LumiGrow, a startup company that offers high-tech, energy-efficient horticultural lighting solutions, in addition to Goldman Sachs, Accenture and both the business offices of the NBA's Warriors and a game that night against the Los Angeles Clippers.

Created with grants from Accenture and John Gingrich '91, a managing director at the firm, the Smart Start program began last fall with a series of two-hour Friday night dinner sessions where the students took part



in self-assessment exercises and various networking, résumé and career-coaching sessions.

"Every single place we went to in San Francisco, you could ask yourself, 'OK, could I see myself coming in here every single day for a long period of time, maybe two, three or 10 years?'" mused Shy Lavasani '20, an economics major from Millbrae, California, whose family emigrated from Iran. "Could I see myself really enjoying this job? It just really helped me thinking about that at every single location, what I really want, what I really need. It gave me a clear direction in terms of what I want to do."

No job seemed out of reach, except maybe one. "I don't think any of us were considering pro basketball," he says. "It's always nice to dream."

—Robyn Norwood

WHO'S THE MOST?

Rosalind Faulkner '19 is podcasting superlatives.

Earlier this year, Faulkner launched "The Most," a SoundCloud podcast in which she interviews Pomona students who embody a particular characteristic the most of anyone on campus—the most quirky, the most flirty, the most existential. Students nominate potential interviewees on Faulkner's Facebook page, and whoever receives the most votes joins her in her KSPC studio for a 15-minute breakdown of the chosen adjective and what it means to them.

Faulkner, who has been interested in podcasting since she created her first podcast during her study abroad in Morocco

last year, wanted to use an interview format to explore the idea of social reputation. "So many people here have really big personalities or things that distinguish them in different ways," Faulkner says, and boiling that nuanced personality down to a single label—like "the most existential"—seems limiting.

But though she expected many people to resist being defined by a lone adjective, most students have embraced their superlatives. "My original intention was to subvert it, but some people do genuinely think of themselves in these big ways," Faulkner says. "At least two of the three were so thrilled to be chosen for these adjectives. They were so happy."





ON-THE-JOB TRAINING

Noor Dhingra '20 likes to start her Fridays with a cup of coffee in the Claremont Village before wandering over to Claremont Depot, the gorgeous 1927 Spanish Colonial Revival train station where she catches the 8:42 Metrolink to Los Angeles.

Her roommate, **Tulika Mohan '20** takes a different approach. “I should be getting up at 7:45. I don’t,” Mohan laughs. “I usually end up getting up at 8:10, and then I run.”

Together, with headphones on or book in hand, they ride to one-day-a-week internships in L.A. subsidized by the Pomona College Internship Program (PCIP), a program that provides a stipend that turns an unpaid internship into a paid one, along with an allowance for transportation—in this case, train tickets for Dhingra and Mohan.

Taking the train to L.A. for an internship during the school year takes time—students often start work at 10 to allow for the commute—but many say the train beats fighting traffic even if someone has access to a car.

“I just find it fun. You don’t feel like a student when you’re on the train, which is a really good feeling to have once a week,” Dhingra says. “You’re so used to seeing professors or students on campus, so it’s just nice being with people of different ages. I always hear conversations, and sometimes it turns into a story I write.”

ZERO-WASTE COMMENCEMENT

Just before her own senior year arrived, **Abby Lewis '19** was working to send off Pomona’s 2018 graduates in the most environmentally-responsible way possible—with a zero-waste commencement.

Armed with information and data from the Office of Sustainability, where she works during the year, Lewis noticed a significant spike in the College’s waste production during the month of May, when thousands come to campus for the annual Commencement ceremony. Working closely with **Alexis Reyes**, assistant director of sustainability, she started working on a zero-waste event model.

An event is deemed ‘zero-waste’ when organizers plan ahead to reduce solid waste, reuse some event elements in future years and set up compost and recycling stations in order to divert at least 90 percent of waste from landfills. For Pomona’s 2018 Commencement Weekend, Lewis focused, among other things, on the catered food and products served at

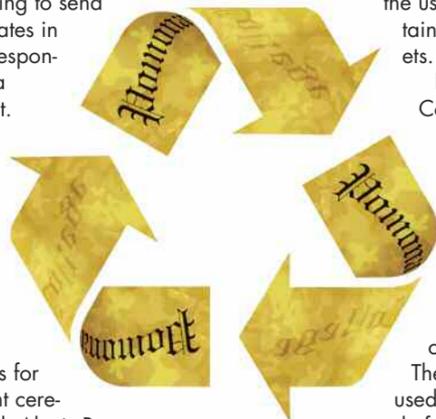
the reception on Commencement Day.

Backed by a President’s Sustainability Fund grant, Lewis worked with Pomona’s catering management on details ranging from the type of wax paper used to wrap food, to proposing utensils that are compostable and the use of reusable sugar containers instead of sugar packets.

Instead of trash bins, Commencement attendees found recycling and composting stations where they could sort their waste. Nearly all food waste generated, such as plates, cups and napkins, was diverted to either compost or recycling.

The disposable products used at Commencement were made from either corn starch or recycled paper.

Another key partnership that Lewis secured with the help of the Office of the President’s **Christina Ciambriello** and Reyes was a deal with **Burrtec**, the College’s disposal contractor. Lewis and her allies were able to convince the company to collect and process ‘industrially-compostable’ items such as specially labeled plates and napkins—something they usually don’t do as part of their service to the College.



Fulbright Fellows Criss-cross the Globe

Twelve Pomona College recipients of the prestigious Fulbright fellowships are criss-crossing the globe this fall, doing research on independent projects or teaching English. Here’s a brief description of their plans:

Audrey DePaepe, a neuroscience major from Tualatin, Ore., takes her Fulbright to the Cognition & Brain Plasticity Unit of Barcelona in Spain and focuses her research on Huntington’s disease.

Jack Gombert, a neuroscience major from Chicago, Ill., travels to Israel to explore the biopsychological effects of medical clowning on patient outcomes.

Laurel Hilliker, an Asian studies and history double major, from Pittsburgh, Penn., goes to Japan, intending to uncover the history of Zainichi Korean political activism within Osaka and Tokyo in the aftermath of the Pacific War.

Emily Rockhill, a biology major from Redmond, Wash., conducts research in southern Brazil, assisting on a project at Universidade Federal do Rio Grande do Sul to identify and describe new species of crayfish of the genus *Parastacus*.

Elizabeth Sun '17, a French major from Albuquerque, N.M., is studying the teaching of English and French in Saarland, a region in western Germany that has historically been a space of French-German interactions.

Rory Taylor, an international relations major from Minneapolis, Minn., travels to New Zealand to examine how the United Nations Declaration on the Rights of Indigenous Peoples acts as a tool of legal advocacy for indigenous groups.

Victoria Vardanega, an economics and Asian studies double major from Fair Oaks, Calif., goes to South Korea to research the relationship between the press and government.

Don Chen, an international relations major from Normal, Ill., is teaching in Taiwan. He plans to focus on storytelling by hosting exhibitions of family history projects by students and an oral history event featuring local elders.

Lauren Callans, a neuroscience major from Ardmore, Penn., is teaching in Estonia. In addition to her love for teaching, she wants to explore her heritage as a third-generation Estonian and share her American culture.

Minah Choi, an environmental analysis major from Olympia, Wash., is teaching in Argentina. She hopes to contribute to the existing literature on Asian communities in Latin America.

Rhiannon Moore, a music major from South Pasadena, Calif., is teaching in Malaysia. Her interest in that country is rooted in her love for Southeast Asian music and desire to explore Malaysian music.

Inga Van Buren, a molecular biology major from Portland, Ore., is teaching in Taiwan. Drawing from her own multilingual background, she hopes to convey to her students the usefulness of being bilingual.

New Dean of Students has Pomona Homecoming

Pomona College’s new vice president for student affairs and dean of students, **Avis E. Hinkson**, brings more than three decades of higher education experience in areas ranging from residential life to student recruitment to undergraduate advising. Her new role, which she began on Aug. 1, marks her return to Pomona College, where she was an associate dean of admissions from 1990 to 1994.

As dean of the college at Barnard College in New York, Hinkson led a staff of more than 100, overseeing academic advising, career development, registrar, health and wellness services, counseling services, Title IX services, residential and campus life, international and intercultural programs and diversity initiatives.

At Barnard, she worked with colleagues to shape the student experience and campus culture while sustaining direct involvement with many of Barnard’s 2,500 undergraduate women and serving as a key partner in Barnard’s unique connection with Columbia University.

“Avis brings just the right experience, energy and high level of engagement to this crucial role,” says Pomona College President G. Gabrielle Starr. “She is someone who reaches out, listens and helps spark change where it is needed. Our students and the wider campus community will benefit from collaborating with her.”

Hinkson’s other roles have included dean of admission and enrollment planning at Mills College in Oakland, Calif.; associate director of admission and director of minority recruitment at the University of Southern California; and associate director of admission and minority recruitment director at Cornell University.

Among her current professional activities, Hinkson serves on the board of



the Consortium on Financing Higher Education as chair of the assembly for the organization of 35 highly selective private colleges and universities committed to meeting the full demonstrated financial need of admitted students.

In addition to earning a doctor of education degree from the University of Pennsylvania, Hinkson holds a master’s degree in student personnel administration from Columbia University’s Teachers College and a bachelor’s degree in psychology from Barnard.

She succeeds **Miriam Feldblum**, who departed in February after a decade of service to become executive director of the Presidents’ Alliance on Higher Education and Immigration, a new initiative that advocates for the legislative interests of immigrant, undocumented and international students on college campuses.

JENNIFER DOUDNA '85 TELLS THE TALE OF ONE OF THE GREATEST SCIENTIFIC DISCOVERIES OF OUR TIME—AND OF THE HUGE ETHICAL DILEMMAS THAT FOLLOWED.

BREAKTHROUGH

(and Aftermath)

Biochemist and UC Berkeley Professor Jennifer Doudna '85 and her team discovered CRISPR-Cas9, a game-changing gene-editing technique with tremendous possibilities for curing diseases of all kinds, thanks to its precision. But with that finding, Doudna (who is also a Pomona trustee) discovered something else—that a great revelation sometimes brings with it a lot of wrestling. In *A Crack in Creation*, she tells a story that is about both success and struggle. *PCM* Book Editor Sneha Abraham talked to Doudna about the implications of what might be the most revolutionary scientific breakthrough of our time. This interview has been edited and condensed for space and clarity.

PCM: You say in your book that, as a research scientist, you need adventurousness, curiosity, instinct, grit, practicality. Where do you get these traits from, and who's your greatest influence?

Doudna: I think it comes from a combination of innate curiosity—I think we all have it, certainly as kids—and appropriate encouragement from family, friends and mentors along the way. That mix gave me an open-mindedness to ideas and a way of figuring out how to ask questions about the natural world.

PCM: Did your Pomona education prepare you for this in some way?

Doudna: I am grateful to Pomona every day, honestly, because it was a liberal arts education that exposed me to so many ideas that I would never have come into contact with, probably, without having attended Pomona. Many smart people, lots of really bright students, and not only those interested in chemistry, as I was, but also people thinking about history, French, physics, mathematics and geography. All sorts of topics. It's a rich intellectual environment that opens one's mind to the incredibly interesting diversity of the world in terms of cultures, ideas and perspectives.

A Crack in Creation
Gene Editing and
the Unthinkable Power
to Control Evolution

By Jennifer A. Doudna '85
and Samuel H. Sternberg

Houghton Mifflin Harcourt 2017
307 pages / \$28.00

PCM: Was there a class or professor that really impacted you while you were here?

Doudna: I think [Professor of Chemistry] Fred Grieman. I know he's retiring soon, but Fred Grieman was a newish professor at the time when I attended Pomona. He was teaching physical chemistry, and he was spectacular. I think he's a great combination of really deep understanding of the material so that you could teach it in a very clear and comprehensible way—and it's not an easy topic, as you know—but also somebody who was very human, very funny, great sense of humor,

really great at connecting with students. We used to play softball together in the summertime, and he always had students working in his lab over the summer and would have barbecues and things like that. He was very good at teaching us students that you could be a terrific scientist, very smart and intellectual, and still have a life outside of the lab.

PCM: In the book, you talk about that moment of discovery, that moment of pure joy in your kitchen. What was that like for you?

Doudna: Well, I've had a few, I would say, such moments in my career, and in this case, it was really one of those rare times in one's life when the stars align. In our case, the ideas had come together, the data for experiments we were working on in the laboratory had given rise to a really sudden understanding of, not only how the CRISPR bacterial immune system works, but also how it could be used in a really exciting way. And that night, that moment I describe in the book, was really one of just unadulterated joy thinking about how amazing it is to explore science and make a discovery that you realize is going to be really impactful and change the world in certain ways.

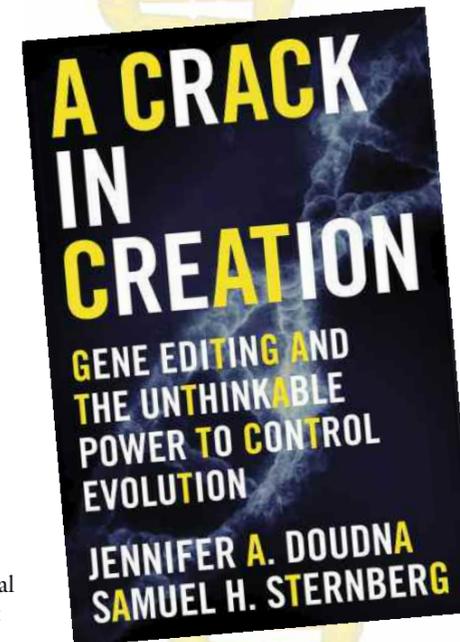
PCM: That discovery presents so many amazing possibilities. Was there an immediate thought that came to mind?

Doudna: For me, it was probably thinking about opportunities to cure genetic disease. When I was in graduate school in the 1980s, my lab was located at the Massachusetts General Hospital, where a professor named Jim Gusella was mapping the gene that causes Huntington's disease. It is a terrible neurodegenerative disease that people get usually in their 20s, 30s, 40s, and then suffer from for many years with progressive loss of neurological function. So, being aware of that gene mapping experiment that was done in the '80s, and then fast-forwarding a couple of decades and realizing that CRISPR technology, in principle, will allow the correction of that kind of mutation was a really profound thought.

PCM: You're a research scientist, but with this discovery, you've become an ethicist as well, right? Were you expecting that as this was unfolding? How has that unfolding been for you?

Doudna: Not at all. I was absolutely not thinking, originally, about the kinds of ethical challenges that would come up. However, it became clear over the ensuing months that CRISPR was working better than anticipated, opening game-changing opportunities in how we might treat existing patients and how the technology might help future generations. What would be the ethical impact and what would go into making the right society and species-defining decisions needed to be explored and debated. I went from being a biochemist and structural biologist, working in my lab on this esoteric bacterial system, to realizing that I needed to get up to speed quickly on how other kinds of technologies that have been transformative had been managed and handled by the scientists that were involved in their genesis. Because the field of CRISPR was moving so quickly, the ethical discussions needed to catch up.

PCM: This is a big question. Is there an ethical dilemma that you're most concerned about with genome editing?



"I REALLY HOPE THAT THERE IS A CONCERTED EFFORT GLOBALLY TO RESTRAIN OURSELVES AND DO THINGS IN A MEASURED AND THOUGHTFUL FASHION THAT DOESN'T GET AHEAD OF THE TECHNOLOGY AND THE ETHICAL DEBATE."

—Jennifer Doudna

Doudna: Well, there are a few that have gotten a lot of media attention. I think I would say that, at least in the near term, what I worry about the most is a rush to apply genome editing in ways that might inadvertently harm people. That might be because of over-excitement or the desire on the part of a scientist somewhere to do something first. I think that competitive want to move ahead with new ideas can be a very healthy drive in science but it can also lead to problems. In this case, I really hope that there is a concerted effort globally to restrain ourselves and do things in a measured and thoughtful fashion that doesn't get ahead of the technology and the ethical debate.

PCM: It raises a lot of questions about us as a society, right? In the book you write about some of the implications socioeconomically and politically. How do you see this unfolding for the good? What are the dilemmas there?

Doudna: That's another really big question. The good news is that there are now lots of discussions happening about the ethics and appropriate uses of gene editing technologies. I think that's great progress but how we ultimately deploy CRISPR is going to come down to the pace at which helpful applications are actually developed and approved for use. For example, one of the most promising applications is called "gene drive." It is the ability to drive a trait through a population very quickly using gene editing. Gene drive could be a real environmental impact concern due to its potential to wipe out a species of mosquitoes and perhaps cause unknown damage to associated species and ecosystems.

On the other hand, if deployed correctly, gene drive could have a hugely positive impact on human health by preventing the spread of mosquito-borne disease, perhaps by adding a trait that made mosquitoes incapable of transmitting a particular disease such as Zika virus. This is the type of cost-benefit calculation that has to be made in each case.

PCM: With CRISPR, when you're looking ahead, or maybe it's happening now, what kind of effects do you see on the biomedical industry or pharmaceutical companies, or the health care industry? Because this will change a lot of how we do medicine, right? ▸

Doudna: I think it will in a few ways. One effect is using genome editing to discover genetic causes of disease. I think that's still a very big data opportunity, to figure out, not only single genes that might cause disease, but also genetic interactions. Where there might be genes that interact with others to create a risk for certain people that bear that particular genetic makeup. I think that's important, and it leads to opportunities to target those genes with drugs, and drug companies are increasingly using CRISPR technology to do exactly that. We are also trying to mine the human genome for new potential targets and then use genome editing to correct those mutations or create, if not a cure, at least some kind of a palliative approach to genetic disease. I think that will happen increasingly, especially as challenges like how to deliver these molecules into cells are addressed.

I also want to mention the incredible commercial opportunities. I'm seeing a lot of young entrepreneurs starting their own companies focused on making use of CRISPR technologies, investors excited to contribute money, and growing opportunities for companies to partner in different areas ranging from biomedicine to agriculture. It is very exciting and these opportunities are not just for scientists, but also for people that have a variety of backgrounds such as business. It's really an interesting convergence of young people with a mix of expertise.

PCM: You write a bit about food politics, and the issue of GMOs, and that gap between the scientific community and the public. What do you think is driving the narrative that you say is false, that GMOs are a danger to our health? What's behind that narrative that's being pushed by other people?

Doudna: I think it's a couple of things. Partly, it's a lack of understanding about what we mean when we say "genetic modification," and the fact that essentially all the food that we eat is genetically modified, because it's edited by plant breeders that introduce genetic mutations. You just have to reference back to what tomatoes looked like before plant breeders got involved. They were very different from how they are today but why is that? Well, changes to the DNA, of course, but those changes were introduced, not by a precision genome editing technology like CRISPR. They were introduced by random mutation and then selection for desired traits. So, the unknown that can worry the public is what other genetic changes come along to the ride? We know they do but we just don't happen to know what they are. I think when people understand that, they start to realize that the whole definition of GMOs is a bit contrived.

Also, I think the public can be suspicious about the intentions of corporations. That perception that corporations do not have our best health interests in mind, that they are out to make money, and that they do not care about potential risks, choosing instead to forge ahead with "Frankenfoods" or whatever you want to call it. We have seen this in the media, and it's potentially at the expense of people's health.

It really comes down to those two things then — not understanding what genetic modification really means and how our current food supply was created by plant breeders, and also being

suspicious of the real motivations of corporations. We need to take a step back and really ask ourselves, "What makes sense here?" Then, we need to take a thoughtful path forward that allows technology to advance and help us solve important challenges in a way that is responsible. It's not an easy balance, but I think we have to try to tackle that.

PCM: So who decides how this technology is used? You talk about that being a dilemma, as well, between scientists and the public. How is that dialogue going, currently, and how do you see that developing?

Doudna: Right now, the way that science progresses is largely decided by scientists, and then there are funders. So, if the scientists have an idea, something they want to do in the lab, they have to get money to do it. If they're getting money from the public, namely from the taxpayers, that involves typically writing a grant, writing a proposal that says, "Here's the science that I want to do, and here's why," and submitting it to a review committee of peers who review and comment on it. For example, they may say, "Well, good idea," or, "Not a great idea," and they then make a recommendation to the government about whether that type of science should be funded. That is how it currently works.

Now, if you're a scientist who has other kinds of resources that are from private money—you have a wealthy donor or a foundation—you have to convince those folks rather than representatives of the government. Either way it usually comes down to an idea on the part of the scientist, and then convincing somebody or some entity to pay the bills. There's a lot of science that involves things that could cause risk to humans. There are various kinds of regulatory controls that are placed on that work and various kinds of panels or review boards approve those kinds of projects. However, there's not a broader oversight other than that, and a number of scientists have commented upon the fact that, for example, institutional review boards, or IRBs, have rules for how researchers can do things like work with human subjects or human tissues. The issue is that the rules are different at every institution.

Since the IRB rules at my institution, UC Berkeley, are different than other universities, I could have colleagues working elsewhere that would be under a different set of rules. That's something that various groups are looking at—ways to try to streamline. As you can imagine, it's very tough because you have a lot of different people with different opinions about these sorts of things. So, it's just an ongoing challenge that we have.

PCM: This is half-joking, but I was chatting with a friend about CRISPR, and he asked, "At what point can we clone ourselves, get out of work, and still get paid?"

Doudna: Wow. That sounds very ambitious. It'll take a lot of work to not have to work. That's all I can say.

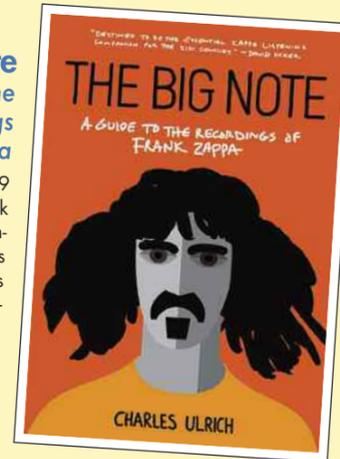
PCM: It's not in the immediate future?

Doudna: No. **PCM**

BOOKMARKS

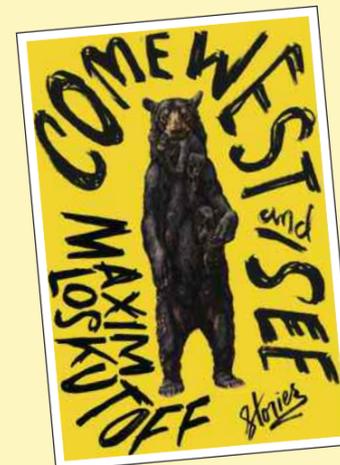
The Big Note A Guide to the Recordings of Frank Zappa

Charles Ulrich '79 offers a guide to Frank Zappa's music composed from hundreds of interviews, letters and email correspondences spanning 35 years.



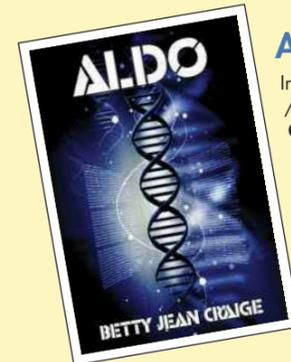
Win The Atlantis Grail (Book Three)

In this fantasy novel by Vera Nazarian '88, nerdy Gwen Lark must fight her way through a difficult contest as the fate of two worlds, Earth and Atlantis, hangs in the balance.



Come West and See

This debut collection of short stories by Maxim Loskutoff '07 describes a violent separatist movement, with tales of love and heartbreak.

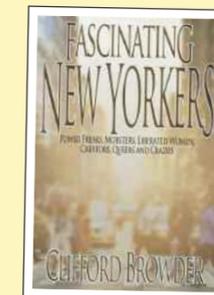
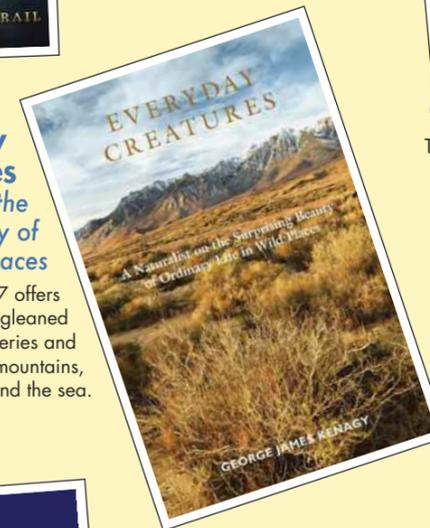


Aldo

In this mystery/thriller/love story by Betty Jean Craige '68, a university president is held hostage when a dangerous ideologue tries to eradicate the school's genetics institute.

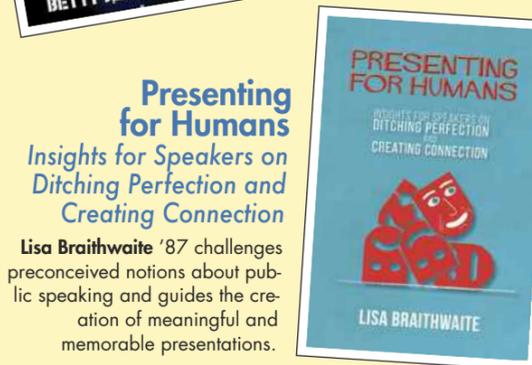
Everyday Creatures A Naturalist on the Surprising Beauty of Ordinary Life in Wild Places

George James Kenagy '67 offers 13 personal essays on nature, gleaned from observations, discoveries and experiences of deserts, mountains, forests and the sea.



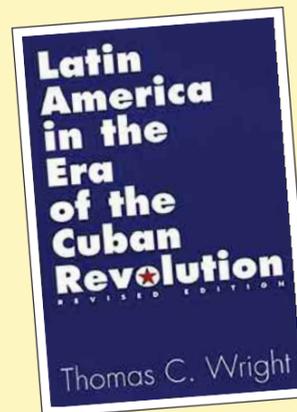
Fascinating New Yorkers Power Freaks, Mobsters, Liberated Women, Creators, Queers and Crazies

Clifford Browder '50 profiles the famous and forgotten, from J.P. Morgan's nose to a pioneer in female erotica.



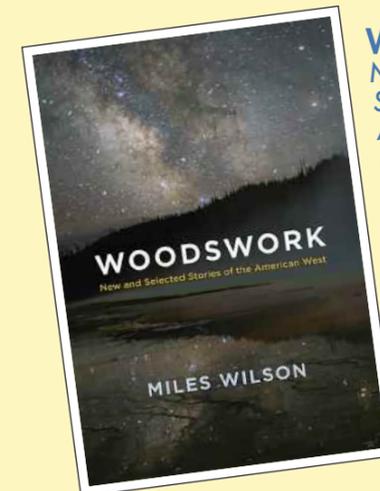
Presenting for Humans Insights for Speakers on Ditching Perfection and Creating Connection

Lisa Braithwaite '87 challenges preconceived notions about public speaking and guides the creation of meaningful and memorable presentations.



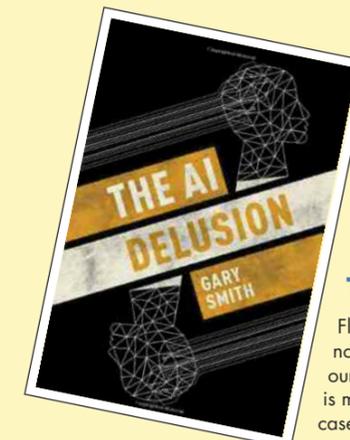
Latin America in the Era of the Cuban Revolution

Thomas C. Wright '63 offers an interpretation of the Cuban Revolution era, synthesizing its trends, phases, impact and influence on Latin America.



Woodwork New and Selected Stories of the American West

Miles Wilson '66 offers a collection of short stories set in the American West—geographically, culturally and psychologically—ranging from fable to realism and ranchers to fathers.

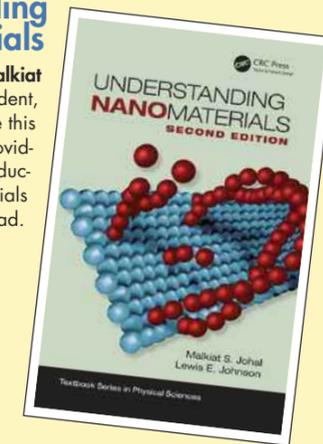


The AI Delusion

Fletcher Jones Professor of Economics Gary Smith argues that our faith in artificial intelligence is misplaced and makes the case for human judgment.

Understanding Nanomaterials

Professor of Chemistry Malkiat Johal and his former student, Lewis Johnson '07, co-wrote this second-edition textbook, providing a comprehensive introduction to the field of nanomaterials as well as an easy read.



CHEMISTRY: PROFESSOR NICHOLAS BALL

From Theory to Practice

A rare collaboration between one of the world's leading biopharmaceutical companies and a chemistry lab at a small liberal arts college began as the result of a chance encounter.

Chemistry major Ariana Tribby '17 was presenting a poster at the American Chemistry Society (ACS) National Meeting in Philadelphia in 2016 when her research, under the guidance of Assistant Professor of Chemistry Nicholas Ball, caught the attention of Pfizer's Senior Principal Scientist Dr. Christopher am Ende.

The biopharmaceutical giant was interested in Ball's lab work using sulfonyl fluorides to make other sulfur-based molecules. Dr. am Ende was particularly interested in Ball's work with sulfonamides.

Sulfonyl fluorides have been used in biology for decades, are valued for their stability in water and bioactivity and are now emerging as precursors for a myriad of sulfur-based compounds. According to Ball, the stability of sulfonyl fluorides are more attractive over traditional routes using sulfonamides that require reagents that have a short self-life or undesirable side reactions. The key challenge for Pomona-Pfizer collaborative study was to figure out a way to unlock the reactivity of sulfonyl fluorides for the desired reaction.

Sulfonamides are widely prevalent in the pharmaceutical and agrochemical industries. They represented 15 percent of the top 100 most prescribed drugs, with therapeutic applications against cardiovascular, infectious and neurological diseases in 2016.

This mutual interest between Pfizer and the Ball Lab led to a year-long research partnership to develop a methodology to make sulfonamides from sulfonyl fluorides using calcium salts. Pfizer did the initial work to come up with a sketch for a synthetic route, while Ball's lab work involved optimizing that synthetic route and testing its versatility. After countless hours in the lab—both at Pfizer and at Pomona—many teleconference calls and more than 100 chemical reactions later, the research team had found an optimal reaction by the end of the summer of 2017.



Nicholas Ball

The study was recently published as an open access article in *Organic Letters*, one of the most highly-regarded academic journals in organic chemistry. Their work will hopefully translate into more efficient ways to make a diverse array of sulfonamides, key for discovering new drug targets.

The article's authors include five Pomona students who worked with Ball: Cristian Woroch '19, Mark Rusznak '18, Ryan Franzese '19, Sarah Etuk '19 and Sabrina Kwan '20, who are a mixture of chemistry and neuroscience majors. On Pfizer's side, along with am Ende, the research and article author team includes scientists and medical chemists: Paramita

Mukherjee, Matthew Reese, Joseph Tucker, John Humphrey, who work in Pfizer's Worldwide Research and Development division. Leah Cleary of Ideaya Biosciences was also part of the team.

For Ball, the goal for students in his lab is to learn how to turn theory into practice, to critically work through scientific challenges and to understand and take ownership of their work. With this Pfizer study, Pomona students were able to better understand the applications of pharmaceutical and medicinal chemistry.

"My experience with industry wasn't until I was on the job market," says Ball. "I was never exposed to the fantastic science that is

occurring at these companies or realized that it was a career possibility. My hope is that this collaboration shows students that there are options for them with a science degree other than academia."

Woroch, who was second author in the study, worked closely with both Ball and Pfizer's am Ende. This project had such an influence on Woroch's research interests that he is continuing to pursue the topic for his senior thesis, and am Ende will be a second reader for it.

"What I am most excited for is an opportunity to answer questions that have been popping up since the project began," says Woroch. "Since our collaboration started over a year ago, there has been a clear direction for the research and so when tangentially-related issues arose, I couldn't address them. Now, I can revisit them and find an entirely new project that is derived from my interests. Dr. am Ende is a very talented scientist and will be a great guide to help me do meaningful and interesting research."

Woroch adds that the ability to apply science to real world problems is a big part of what drew him to research. "Particularly when projects are challenging or frustrating, having a practical application for your work is a driving force," he says.

According to ACS data from 2013, 53 percent of chemistry graduates are employed in industry sectors after attending graduate school, while 39 percent go to work in academia.

Besides this research study, Ball, am Ende and Woroch share another commonality: They all received a Beckman Scholarship at some point in their chemistry research careers. The Beckman Foundation provides grants to researchers and nonprofit research institutions in chemistry and life sciences to promote scientific discoveries and to foster the invention of methods, instruments and materials that will open up new avenues of research.

"I am very excited that our collaboration with Dr. am Ende's group at Pfizer is continuing," says Ball. "We already have a follow-up [study] to this recent paper underway. During my first conversation with Dr. am Ende, he stated that we should be working together versus working against each other and I couldn't agree more! It is even more special that we share the bond of being Beckman Scholars."

—Patricia Vest

GEOLOGY: PROFESSOR JADE STAR LACKEY

A Shale's Tale

Shale, a fine-grained sedimentary rock formed from silt or clay particles, holds chemical clues to one of Earth's most dramatic geological events – when continents first bobbed well above sea level.

Using the Pomona College X-ray Fluorescence Laboratory (XRF), Associate Professor of Geology Jade Star Lackey with Trevor Pontifex '18 and Christopher "Cal" Neikirk '19 analyzed the chemical elements of shale rock from around the world – providing an important check on the results gathered by University of Oregon Professor Ilya Bindeman's research, published in the May issue of *Nature*. "We're answering a deep time question about Earth's behavior with this work," says Lackey.

"The findings are significant. It puts another piece of evidence of when Earth's continents stood more prominently above the oceans," says Lackey, who is chair of the Geology Department. "On a planet that was hot and active and had a vigorous mantle before this, it was hard for continental rock to rise really high."

Lackey provides an analogy: Imagine dumplings in a pot of stew. They begin as dough that doesn't have much strength, but nonetheless float near the surface of the pot. As they cook and stiffen, they gain strength and begin to rise up above the surface of the pot. If the stew cools and thickens, in the same way the mantle would have, those dumplings could sit even higher. Tectonics would move the dumplings around, and when several collide—think of this as assembling a supercontinent—they can rise even higher.

The research shows that shale rock sampled from around the world contains a record of the weathering of land that spans most of Earth's history. The team analyzed oxygen isotopes in samples from every continent to test for fingerprints of the style of weathering that occurred. Lackey explains that the conversion process of land (the

dumplings in a pot of stew analogy) to clay minerals in shale is recorded in the oxygen isotopes. "It's profound to think about, that we're seeing a different style of weathering start [on Earth]."

Lackey joined Bindeman's research team in summer 2016, when he and laboratory interns took a look at the bulk chemistry of the shales that were sent to their laboratory.

"The important piece of the story is between 2.2 and 2.5 billion years ago, but to see it, we had to go back and scrape together as many shales as we could find,

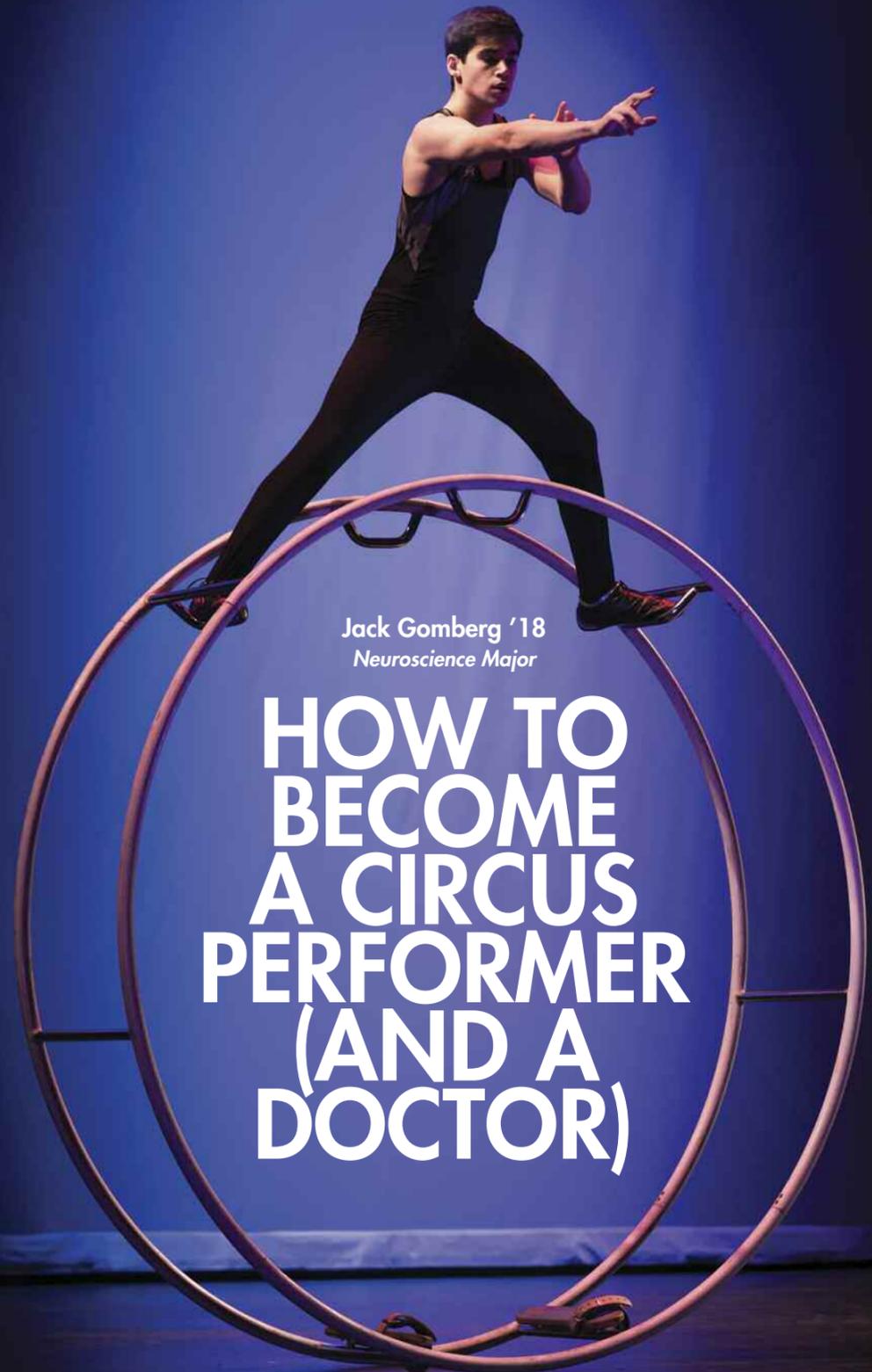


Jade Star Lackey

even the rare stuff, going back to 3.5 billion years ago," says Lackey, who explains that the shales were hard to find and had to be handled with care in the lab.

The Pomona College Geology Department counts on a number of specialized lab instruments for faculty and student research. The XRF Lab was founded in 2010 and uses an Axios wavelength-dispersive spectrometer which allows analysis of a wide range of elements that make up the bulk of crustal rocks. "We operate with the highest level of research thanks to the College's support for major equipment," says Lackey.

—Carla Guerrero



Jack Gomberg '18
Neuroscience Major

HOW TO BECOME A CIRCUS PERFORMER (AND A DOCTOR)

Thanks to a childhood fascination with circus activities, **Jack Gomberg '18** found himself, at the tender age of 18, at a crossroads, having to choose between two radically different paths in life. Should he seize a rare opportunity with Cirque de Soleil or keep his love of the circus arts as an avocation while pursuing a more traditional education at Pomona? Put yourself in his shoes...

1 Grow up in a baseball centric family in the Lakeview neighborhood of Chicago near the Chicago Cubs' famed ball park, Wrigley Field and start playing tee ball at 3. Discover that you're a little above average as a toddler athlete, meaning that you can run all the way to first base without falling down.

2 In kindergarten, attend a hands on workshop by the nonprofit social circus group CircEsteem. After failing miserably at juggling scarves, test your sense of balance on a rolling globe—a hard sphere about four feet in diameter—and do so well that the group invites you to join them for practices.

3 Partly because the workshop was so cool and partly to escape the soccer practice you despise, join CircEs' teen's new after school program and discover an awe-inspiring new world—a cavernous circus ring where kids up to high school age are performing all sorts of acrobatics on the ground and in the air.

4 At first, stay in your comfort zone with your rolling globe. Then slowly branch out to other circus arts, such as trampoline and partner acrobatics. Avoid two things like the plague: juggling and aerial acrobatics. Conquer your dread of juggling at the age of 8, and two years later, overcome your fear of heights on the static trapeze.

5 See your first Cirque de Soleil *Corteo* at age 12 and realize that the circus can be truly artistic. Then, when world gym wheel champion Wolfgang Bientzle comes to Chicago to create a Team U.S.A. in the sport, catch his eye and fall in love with the gym wheel under his expert tutelage.

6 Win your first national championship in gym wheel at 14 after telling your mom she didn't need to stay because the competition was "no big deal." Go to your first World Championships in Arnberg, Germany, and make friends from around the world while reaching the finals in all three 18 and under events, including one fourth place finish.

7 Two years later, apply to Cirque du Soleil to spend a week at their training facility in Montreal, Canada, and get invited to serve as a temporary gym wheel coach for the Cirque du Soleil acrobats. Then, when the World Championships come to Chicago, defend your home turf by winning two bronze medals.

8 While applying for college, also apply to the École de Cirque in Quebec, a feeder school for Cirque du Soleil. Since you know its three year program is impossibly exclusive, apply for a gap year in its slightly more accessible one year program. Get accepted to the three year program instead. Have to choose between a circus life and Pomona. Choose Pomona.

9 Even before arriving on campus, make arrangements to form a club at The Claremont Colleges because you want to build a community of people with an interest in the circus arts. Name the club 5Circus and serve as its president for three years before, in the name of continuity, letting someone else take over during your senior year.

10 Major in neuroscience and decide to become a doctor. But since you didn't take a gap year before college, decide to take one before entering medical school. Win a Fulbright Fellowship to spend the year in Israel, melding your passions for medicine and the circus by studying an innovative para medical practice known as medical clowning.

LUKAS MENKHOFF '21 SWIMS A WINDING PATH FROM SINGAPORE TO POMONA COLLEGE TO AN NCAA CHAMPIONSHIP.

GOING SWIMMINGLY

The line at the bottom of the pool is always straight, but it has taken Lukas Ming Menkhoff '21 on a winding path around the world. The 6-foot-4 swimmer from Singapore has competed in Beijing, Berlin, Stockholm, Dubai and Moscow on his dripping-wet international tour.

Indianapolis might not have the same ring, but the first-year swimmer made Pomona-Pitzer history there in March, becoming the first men's swimmer in Sagehen history to win an individual NCAA title when he claimed the 100-yard breaststroke at the NCAA Division III Swimming and Diving Championships.

The Pomona-Pitzer men's team finished eighth overall and the women were ninth, marking the first time both teams have finished in the top 10 in the same season. His time of 53.39 also shattered the old Pomona-Pitzer record and earned him first-team All-American honors.

"It's a deep honor. I couldn't have done it without the support of my teammates and coach," Menkhoff says. "Strangely I wasn't nervous at all for this race. I was determined to start the race well, kick the wall and stick with my plan. I was able to execute what I visualized."

Menkhoff also combined with Mark Hallman '18, Samuel To '18 and Ryan Drover '19 to take third in the 400 freestyle relay in 2:59.08, a Pomona-Pitzer record, and Menkhoff finished ninth in the 100 freestyle in 44.22.

By the time his record-breaking race began, Menkhoff had already competed in nine other races over the course of three days, and he was exhausted. During the race, he refrained from looking left or right—"By looking left, you lose like one-hundredth of a second," he explains—so he didn't know he'd won until he looked up at the scoreboard.

International Experience

Menkhoff hardly could have taken a more circuitous route to Pomona College. Already 22 years old as a first-year student, he completed Singapore's mandatory military service before beginning his college career. He also spent a year focused almost entirely on training with the national team between high school and the military.

His arrival at Pomona-Pitzer added a new level of international experience to the program this season. Menkhoff has swum in 14 FINA Swimming World Cups and almost made the prestigious Commonwealth Games team. Singapore's small population gave him opportunities he wouldn't have had as an American.

"For me, it was a true privilege to be able to represent Singapore and swim on the world stage with Olympians and world-record holders, train alongside and converse with them, learn from them and even dine

with them," says Menkhoff, whose races for the national team as a teenager were sometimes televised.

After making Singapore's national team at 14, Menkhoff had the opportunity at a young age to mingle with some of swimming's stars, including Ian Thorpe and Michael Phelps. He also had a few Phelps moments while training at the North Baltimore Aquatic Club, Phelps' home club, for several weeks one summer as a teenager.

Phelps approached him on the pool deck, complimenting Menkhoff's freestyle stroke as "so long and smooth" and com-

"In that year, I was a full-time swimmer, training with the national team, traveling the world, competing," he says. "That was an incredible experience. I managed to squeeze in two internships in that period, but I was mostly swimming."

The College Search

During his year in the military, Menkhoff also undertook what became an exhaustive and methodical college search. "It was quite remarkable how organized he was about his college search process," says Jean-Paul Gowdy, the Pomona-Pitzer coach. "He was looking at schools in Britain and he was looking at schools in the U.S. He had a whole spreadsheet that he showed us after the fact."

Menkhoff researched and communicated with dozens of universities. Yet Pomona College was the first he visited in the U.S., and Gowdy the first coach he met with. He considered Division I programs before learning his post-high school competitions would cost him a year of eligibility, and ultimately circled back to where he began with that first chat in Gowdy's office.

He began to think, "Where is swimming in my life right now?" he recalls. "It's not, certainly, my career. It has in many ways been keeping me back from finding myself and my true interests. I realized that the Division III setting is perfect for me, the best of both worlds. For me, deep down, within that four-month college search process, I knew Pomona was for me, and it was mostly the interaction I had with Coach Gowdy."

Despite all his international experience, Menkhoff also benefitted from the presence of Hallman and To, two seniors who competed alongside him in the NCAA meet.

"In a lot of ways, Lukas is good for them; in a lot of ways, they're very good for him," Gowdy says.

For Menkhoff, it would seem, this is just the beginning.

—Robyn Norwood

Sagehens Claim All-Sports Trophy for Men's Teams

Pomona-Pitzer claimed its first Southern California Intercollegiate Athletic Conference (SCIAC) All-Sports Trophy in 26 years last spring, taking the men's trophy after winning four SCIAC championships.

On the women's side, the Sagehens finished second to Claremont-Mudd-Scripps (CMS). CMS claimed the combined All-Sports Trophy in a closely contested battle with Pomona-Pitzer, finishing the year with a total of 159.5 points to the Sagehens' 153.

"We knew we were having a strong year and to finish it like this is a huge step forward for our department," said Director of Athletics Lesley Irvine.

On the men's side, the 2017–18 Sagehens won SCIAC championships in cross country, swimming and diving, water polo and track and field.

The men's cross country's championship was Pomona-Pitzer's first since 2005, and the men's track and field team rose to the top of the SCIAC for the first time in 27 years. In Jordan Carpenter's first year as head coach of both cross country and track and field, he took SCIAC Coaching Staff of the Year along with SCIAC Athlete of the Year in Andy Reichling '19.

The men's water polo team appeared in their second straight NCAA tournament with back-to-back SCIAC championships, finishing the year ranked No. 17 across all divisions. Head Coach Alex Rodriguez and his staff earned SCIAC Coaching Staff of the Year, and goalkeeper Daniel Diemer (Pitzer '18) was named SCIAC Player of the Year.

Swimming and diving claimed the program's first SCIAC championship with Athlete of the Year Mark Hallman '18 and Newcomer of the Year Lukas Menkhoff '21.

The women's teams claimed two SCIAC championships. The women's swim and dive team captured their second SCIAC championship in three seasons behind SCIAC Coach of the Year J.P. Gowdy and SCIAC Athlete of the Year Maddie Kauahi. The women's water polo team won the SCIAC championship for the second year in a row and moved on to play in the opening round of the NCAA Tournament. Alex Rodriguez and his team finished the regular season undefeated in SCIAC play earning him SCIAC Coach of the Year along with SCIAC Athlete of the Year in Jocelyn Castro.



PICTURE THIS

Berto Gonzalez '20 as Puck and Rieanna Duncan '21 as 1st Fairy in Pomona College's hip hop inspired, gender bending production of Shakespeare's *A Midsummer Night's Dream*, directed by Carolyn Ratteray.

Photo by Ian Poveda '21

WHAT'S NEXT?

AS A THOUGHT EXPERIMENT, WE ASKED ALUMNI, FACULTY AND STAFF EXPERTS IN A WIDE RANGE OF FIELDS TO GO OUT ON A LIMB AND MAKE BOLD PREDICTIONS ABOUT THE YEARS TO COME. HERE IS WHAT WE LEARNED.

What's Next? Revolutions?

Where in the world will the next revolution happen? And what will it look like? These are questions Associate Professor of Sociology Colin Beck thinks about a lot. The author of *Radicals, Revolutionaries and Terrorists* is now at work with five other scholars on a new book titled *Rethinking Revolutions*, and last fall, three of his coauthors joined him at Pomona for a panel session called “The Future of Revolutions.” As part of that event, Beck asked each of them to make a prediction as to where the next revolution will unfold.

Some of the answers surprised even Beck.

The first to hazard a guess was George Lawson of the London School of Economics, who settled, provocatively, on a country that seems like the height of iron-fisted control—China. “China has more collective action events, more protests, than any other society in the world on a yearly basis,” Beck explains. “Most of them are local, anti-corruption protests against local corrupt elites. But George made a really good point—that one of the more robust findings in revolutions research is that, to the extent that a regime becomes personalized, as it becomes invested in a single individual as an expression of power, it also becomes more vulnerable, because it creates a target for people to impose their grievances on. So as Xi Jinping moves toward a much more personalist rule and away from the Politburo, away from the bureaucracy, that creates a potential danger in the years to come.”

Second up, Daniel Ritter of Stockholm University shifted the focus to the oil-rich kingdom of Saudi Arabia. “Another consistent finding in revolutions research is that revolutions are often catch-up events,” Beck says. “They’re taking societies that have not kept up with modernity and thrusting them into it. So as Saudi Arabia is trying to modernize its government and liberalize somewhat its society, they may actually be fueling the potential for mass protest.”

A third scholar, Sharon Erickson Nepstad of the University of New Mexico, refused to speculate about the next revolution. Instead, she made a suggestion about where it won’t be—the protest-torn state of Venezuela. “Because everyone would think that would be the place, right?” Beck says. “She’s done a lot of work on peace movements and the like, and she looks at the situation in Venezuela and thinks the opposition there hasn’t done the hard work of mobilizing that a successful movement needs to do. They haven’t built the organizational infrastructure. It’s not deeply rooted enough in society.”

Beck himself isn’t so sure, however. “The Venezuelan government shoots people dead in the streets,” he notes, “and shooting people dead in the streets is generally a losing strategy. I mean, it’s a successful short-term strategy but a poor long-term strategy—unless you shoot a lot of people down in the streets. Then it works, as terrible as that sounds.”

BY SNEHA ABRAHAM,
CARLA GUERRERO '06,
MARY MARVIN,
PATRICIA VEST
AND MARK WOOD

And what was Beck’s pick for the next revolution? “I decided that I would, provocatively, say what the political scientists are starting to call ‘the illiberal democracies’—Hungary, Turkey, Poland, Russia,” he says. “Turkey, in particular, is really setting itself up for a challenge. There’s a lot of concern right now about the illiberal democracies, and maybe this is the way of the future, but I think human rights, democracy—they’re too widely legitimated. They’re too embedded in normative consciousness globally for them to erode that quickly. Which means that these countries are going against the grain, and they’re creating the contradictions that can fuel future protest.”

There were two points, however, upon which all four scholars agreed.

First, most revolutions are likely to follow the same nonviolent path as the Arab Spring—unarmed civil protests as opposed to violent insurgencies—at least for now. “There’s definitely been this shift from the kind of mid-20th-century communist guerilla warfare model towards this kind of Berlin Wall-Arab Spring model,” Beck says. He wonders, however, how long that will last, given the fact that so many recent examples have ended in failure.

Their second point of agreement was surprising, given the usual narrative about the Arab Spring. “My colleagues and I all pretty much agreed that the effect of social media on revolutions has been overstated,” he says. “The thing I like to think about is that the biggest day of protests in Egypt happened the day after the Mubarak regime shut off the Internet. And the reason that was the biggest day of protests was because the Muslim Brotherhood decided to turn out, and the Muslim Brotherhood has a traditional form of grassroots organization.”

All of these speculations were intended to be a kind of engaging thought experiment, Beck says, adding the disclaimer that predictions of this sort are really little more than educated guesswork. He points to recent events in Armenia, where protests unexpectedly brought about a sudden change of leadership. “A few weeks ago, George wrote all of us to note that no one had mentioned Armenia at all,” he says. “It’s too soon to say what will happen there, but we saw the model again—protest and elite negotiation to force a change in who is in power. And none of us saw it coming.”

WHAT'S NEXT FOR Syria?

Predicting the future in a conflict as multi-faceted as the Syrian Civil War is daunting, and Politics Professor Mietek Boduszynski says his thoughts on the matter have shifted several times, including last May, when the United States pulled out of the Iran nuclear deal.

With that decision, the former U.S. diplomat believes, President Trump may have ratcheted up the chances of a military confrontation between Iran and Israel that might complicate his future policy options in Syria.

“One way it might play out,” he says, “is that Iran—which has wound down some of its proxy forces since the defeat of the Islamic State—may feel it has nothing to lose in expanding activities in Syria, which would alarm Israel. So Israel continues to drop bombs and maybe moves to something more, such as special forces, and then it escalates from there. And the ultimate escalation would be if Hezbollah, operating out of Syria, fired a long-range missile that hit an Israeli target and killed lots of civilians. You can imagine what would happen then.”

WHAT'S NEXT FOR Mexico?

With the July 1 election of Andres Manuel Lopez Obrador (widely known by his initials, AMLO) as president, Mexico stands at a historic turning point, one that leaves Professor of Latin American Studies Miguel Tinker Salas cautiously optimistic about the prospect for real change.

“This represents a collapse of the existing political structure, led by the National Action Party [PAN] and the Party of the Institutionalized Revolution [PRI],” he explains. “It represents a rejection of their policies and of the U.S.-imposed war on drugs, and it speaks to the need most Mexicans feel for a fundamental change in their society.”

As an election observer, Tinker Salas says he saw blatant election fraud, but this time, the outrage over rampant corruption and desire for change were too strong for the two parties that have held power for the past 82 years to quash.

Among other things, AMLO has promised a major shift in the nation’s war on drugs—which has left more than 200,000 people dead and 30,000 disappeared in recent years—even proposing an amnesty for those not involved in violent crimes. He’s also pledged to defend Mexican immigrants in the U.S. and to revisit the controversial energy reforms of his predecessor. To show accountability, he’s vowed to offer himself up for a recall vote halfway through his six-year term.

Though AMLO has been labeled a leftist by his opponents, Tinker Salas believes the charge is bogus.

“Comparisons to Chávez in Venezuela or Correa in Ecuador or Morales in Bolivia are facile. They’re intended to inflame the political debate. AMLO was a member of the PRI, the dominant party. He attempted to reform the dominant party. Unable to, he joined other forces in forming the PRD, the Party of the Democratic Revolution, ran for office twice, with some very strong evidence of fraud against him.”

“This time,” he adds, “indignation defeated fear.”

WHAT'S NEXT FOR Japan?

Japan may be the economic canary in the coal mine, Matt Sanders '00 believes. And at the same time, it may already be transforming itself into the economy of tomorrow.

Once a powerhouse, Japan's economy has struggled for the past 30 years. Much of that sluggish growth, says Sanders—the founder and president of East Gate Advisors, a U.S.-Japan business advisory firm—can be attributed to demographics. “Japan leads the world in its aged population, and there's also the fact that the Japanese population has actually been in decline for seven years,” he says. Add to that the tendency for Japanese women to quit the workplace after they marry, and you have a declining number of workers supporting an increasingly expensive non-working population.

But with populations aging throughout the developed world and automation displacing more and more human workers, Sanders thinks other societies—including ours—may soon be in the same predicament. If so, he says, the liabilities that have hindered Japan's progress may also be transforming it into the economy of the future.

That's because the Japanese are integrating technology in general—and robotics in particular—into their society at a rate that Americans find mystifying. Americans remain leery about interacting with robots, but the Japanese have welcomed them enthusiastically.

Sanders points to the proliferation in Japan of such robots as Aibo, the cute little robotic dog; Asimo and Pepper, anthropomorphic robots designed to act like humans; and Paro, a cuddly robotic baby seal designed to work as a kind of therapy animal with dementia patients. These may seem like curiosities now, but in a world where fewer people are working and more people need care, such technologies may soon be necessities. “In the U.S., the lack of consumer and general public acceptance has a real tendency to hold that technology back in integrating into society, and that's where you can see the Japanese sort of charging ahead,” Sanders says.

The resulting transformation of Japanese society, he says, will be just one more in a long line of periodic transformations. “Japan stays exactly the same for a long, long time, until some sort of event happens. And then it changes really quickly, like right before your eyes, overnight and radically. The place will stay exactly the same for 50 years, 100 years, 200 years. Then suddenly, something happens, and boom—it's unrecognizable the next day.”



What's Next for the United States?

Susan McWilliams doesn't mince words when it comes to predicting the future of the American Experiment.

“Republics don't last,” says Professor of Politics McWilliams. “I don't think we should shy away from the assumption that this republic, like all other republics has an expiration date. If we acknowledge that, then we realize that it is our job to think about how to prolong republican government as much as possible. We should be asking ourselves: What are the specific dangers to republican collapse that we're seeing now, and how can we mitigate those?”

Those dangers, says Professor of Politics David Menefee-Libey, include the current attacks on liberal democracy and the rule of law by the president and some of the most powerful people in government. “We should also be worried about the cynical ways so many people in the business and nonprofit worlds have responded—taking advantage of the system even as they work to erode it,” says Menefee-Libey. “They spend enormous amounts of money and work so hard to gain influence at the same time they talk trash about politics and governments in public. They seem to want the U.S. system to become more of an oligarchy, run by and for the rich and powerful, than a democratic republic.”

That sounds familiar to McWilliams, who studies the history of political thought. About 2,400 years ago, she says, Plato wrote about oligarchs and their contempt for democracy and linked the uncertainty in people's lives to democracies that devolve into tyrannies. “Think about America now,” says McWilliams. “We have a low unemployment rate, but most Americans have lives that are very uncertain, where they're living paycheck to paycheck, where they're not sure what their children's lives are going to look like. Plato says if you're feeling that kind of



overwhelming uncertainty, you're going to be inclined to follow people who tell you, 'I am certain about this.'”

An antidote to oligarchy and tyranny, suggests McWilliams, is liberal arts education. “The liberal arts are meant to educate in the arts of liberty; that's where the phrase 'liberal arts' comes from,” says McWilliams. “(W.E.B.) Du Bois would say what we're doing in American today is moving away from a mode of education that aims at civic and political empowerment, and we at places like Pomona need to do all we can to support liberal education everywhere.”

When you educate people, adds Menefee-Libey, it challenges parochialism and the ability to think that other people are somehow less human and less worthy of respect and inclusion in public life.

“I think the next 10, 20 years are going to be extraordinarily difficult, but I also think that there are ideas and leaders, policies and strategies that can get us out of this,” says Menefee-Libey. “I am not an optimistic person, but I am a hopeful person, and I think there's a tremendous amount of hope.”

WHAT'S NEXT IN EARTHQUAKE SAFETY?

Someday—probably in some crowded city in a developing country—an earthquake will come along that causes a million casualties, warns seismologist and President of GeoHazards International Brian Tucker '67.

Tucker specializes in mitigating earthquake risks, but he believes it may take just such a mega-disaster to force governments to act. “Unfortunately, major advances in earthquake preparedness come after disasters,” he says. “I think the next big advance will occur when a big disaster takes place and it grabs people's attention and the attention of governments.”

One of those advances he would like to see is wider adoption of earthquake early warning systems (EEW) like the ones developed in Mexico during the 1990s and in Japan way back in the early 1960s. China also has such a system, as do Taiwan and Turkey.

Soon, so will the United States.

The concept of an early warning system in the U.S. has been discussed as far back as the 1860s in a letter to the *San Francisco Daily Evening Bulletin*. Tucker himself wrote in the late 1980s about modeling a warning system in California after Japan's when he served as director of California's Geological Survey.

The biggest problem (other than financing) is that California faultlines offer a special challenge. In Japan and Mexico, earthquakes originate offshore and seismic waves have farther to travel before affecting urban centers. In California, population centers sit right on top of fault lines, giving less time for warnings.

Today, however, a U.S. version of the system is finally in the works. “Thanks to advances in telecommunication and the internet,” he says, “an early warning system should become part of Californians' lives in the next 10 years.”

However, he doesn't expect it to be easy. “It needs to be thoroughly tested, and people need to be trained in what a warning means and

what it doesn't mean,” says Tucker. “One danger would be having too many warnings that didn't result in damage, because people would lose faith in the system. Another would be accurate warnings of damaging earthquakes that give too little time for people to react.”

The first stages of an early warning system in California would communicate directly to “non-humans,” according to Tucker. “The application will first be to things such as electrical power plants or subways,” he says. “It will communicate directly to trains telling them to slow down, communicate to hospitals to switch their electrical power to a backup system. It could also automatically open the doors of fire stations before strong shaking occurs. This could become automatic without going through a human, which would be a really great first step in application.”

The beauty of these initial measures is that they come at “no cost.” It doesn't matter if it's a false alarm, whereas the tricky thing is issuing alarms directly to humans, because they may panic, or they may get annoyed if it's a false alarm.

Eventually, Tucker believes California's system will get to a point where it's sophisticated enough to communicate directly to people. Japan already has that, he says.

“The warning in Japan's Tohoku earthquake and tsunami in 2011 was directly to people,” he says. “An amazing fact about that earthquake is that only three percent of the population that was living in the inundation zone of the tsunami was killed. Unfortunately, that amounted to 19,000 people, but, if you go to other places like Sumatra, they expect something like 50 percent of the population living in the inundation zone to die because of lack of warning and lack of preparation.”

WHAT'S NEXT IN Climate Action?

Will the United States meet its emissions reduction goals as outlined in the Paris Agreement? Unlikely, says recent grad Tom Erb '18. Without a strong, federal price on carbon—a long shot under the current administration—the U.S. will surely fail.

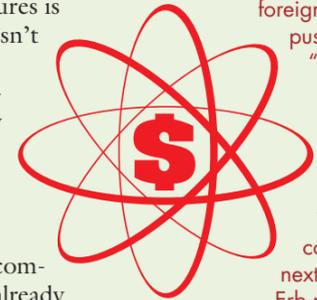
Erb is no newcomer to the campaign for carbon pricing. At Pomona, Erb has been a tireless climate change activist, mobilizing young people around the country to act now. For the past two years, Erb has been an organizer with the Put A Price On It campaign, a collaboration with the *Years of Living Dangerously* television series to mobilize grassroots support for a national price on climate pollution.

“After the reversal on climate action by the U.S. government, American states and foreign countries are continuing the push for climate policies,” he says.

“Right now, you have a lot of states trying to get a head start trying to pass carbon taxes: Oregon, Washington, New York, Massachusetts and jurisdiction of Washington, D.C. Those are five or six places that could pass a carbon tax in the next two years,” says Erb.

Erb predicts that in the next five to 10 years more states will adopt policies that include expanding renewable portfolio standards, investments into electric vehicles, tax credits for carbon capture technology and moratoriums on gas and oil extraction. While these policies are not as effective as carbon pricing, Erb argues, they are likely, in the short run, to gain political support.

“But to make a real impact you're going to need a national carbon tax and we need carbon pricing around the world.”



WHAT'S NEXT FOR

WATER IN CALIFORNIA?

What's a California winter with no snow-covered peaks? How will we even know it's December?

By the end of this century, Mt. Baldy and the other mountains in the San Gabriel and San Bernardino ranges will be snowless, says Char Miller, director and W.M. Keck Professor of Environmental Analysis and History. For Miller, it's not just about losing the great views but the natural water storage that keeps the valleys hydrated.

"The natural system we have is shifting," says Miller. "Water won't be stored in glaciers or snow banks to slowly release in the spring, which means when the rain falls, it's going to be moving. We're not going to be able to manage water with dams."

Miller says there is more than one culprit. Climate change is at the top of the list, but so are slow-moving plans to capture fast-moving water (which can travel up to 60 miles an hour on its way to the Pacific) and antiquated water rights that affect how we manage water.

The worst drought in recorded California history has prompted a number of ideas to capture, preserve and distribute water, including projects like desalination plants in San Diego and a proposal for two 35-mile-long tunnels that will carry water from the Sacramento River to the San Francisco Bay area, the San Joaquin Valley and Southern California.

"Orange County, which is way ahead of L.A. County and others, has one of the world's largest, if not the largest, treatment plant, where they're grabbing every drop of black water (sewage) and cleaning it up to a level that you can drink it," says Miller. "Because no one wants to talk about toilet to tap, they're pumping it into their aquifers and out on the other

side as groundwater, which is kind of a fig leaf."

Some solutions have been around for years, including aquifers, sponge-like areas where the water run-off is stored naturally in the ground. Miller points to Pomona College as an example, where bioswales and permeable landscaping direct water to an aquifer under campus.

"Go look at a picture of the Greek Theatre after the 1938 flood," he says. "There are students paddling boats there. It is a sink, literally a sink. Nature did that. Reservoirs can trap water, but it also evaporates. If we're smart, we would utilize these natural aquifers."

In L.A. County, two miles from the College, the Chino Water Conservation District has been doing just that since the 1940s, says Miller. Initially confined by law to work within the boundaries of San Bernardino County, the district is starting to collaborate across county lines.

"I think there's going to be a shift in terms of how we think about collaboration, how we ignore existing political boundaries, because nature ignores them," says Miller. "What we also have to do is to rethink not just water as a consumable thing, but how we want to live in a landscape that burns, that floods, and in which the sea level is rising. There are lots of things that we could do right now, and must, if we'd like future generations to look back and say, 'You know, they actually tried. They may not have gotten it right all the time, but they tried.'"

WHAT'S NEXT IN

Climate Science?

The study of our changing climate has a newcomer: the social psychology of climate change. Professor of Psychology Adam Pearson is helping lead the way with the growth of a new branch he and his collaborators have coined "social climate science."

Pearson is working with other psychologists interested in what motivates different groups to get involved with the issue of climate change and how decision-makers and influencers can engage a broader segment of the population around these issues. Pearson recently co-edited a special issue of *Group Processes & Intergroup Relations* that seeks to understand how group dynamics influence how people perceive and respond to climate change, including groups we may often not think about when it comes to environmental problems.

"There's a myth of the white environmentalist," says Pearson. "There's a perception that Whites are most concerned about climate change, but when you look at public opinion polls, those surveys show that minority groups, specifically Latinos, Asian Americans and African Americans, and lower-income Americans are as or more concerned about environmental issues than the prototypic image of an environmentalist often encountered in the media, who is White, affluent, and highly-educated. Some minority groups like Latinos and Asian Americans identify more as environmentalists than Whites."

Pearson adds that scientists and practitioners need to better understand the consequences of these prevalent stereotypes. That understanding will help answer questions of how people in power—environmental advocates and policy-makers—can better engage minority groups who represent a fast-growing segment of the US public and are often the most negatively impacted by issues like climate change.

"All groups need a say for creating communities that are livable—whether living in coastal areas facing flooding, hurricanes, wildfires, air pollution, or soil contamination. Take the textbook examples of the Flint water crisis or Hurricane Katrina. Some segments of the public were disproportionately affected by these crises, and climate change will exacerbate these disparities."

Pearson points to the past few decades of research on health disparities and how cross-disciplinary collaborations have helped move the needle on global issues like the HIV/AIDS epidemic that also disproportionately affect communities of color. "There are blueprints out there and a lot of that work comes from within my field, from psychology. Psychologists have contributed to reducing health disparities, and I'm optimistic that we can do the same for environmental disparities."

WHAT'S NEXT IN

Solar Energy?

When we think about the future of solar energy, we usually think about new generations of solar cells that are more efficient or more affordable or longer-lasting—or some happy combination of the three. Lots of scientists and engineers are at work on that side of the equation, including Professor of Physics David Tanenbaum, whose current research involves the development of perovskite and organic polymer-based solar cells that should be cheaper to produce than the silicon variety.

And yet, while better solar cells will help, Tanenbaum believes the next big step forward in solar energy probably won't be on the production side at all—it will be mainly about energy storage.

"It's really about battery technologies, capacitor technologies and other ways to deal with the fact that we're changing our world from centralized baseline power plants to distributed intermittent energy generation, whether it's wind or solar," he explains. "And the storage of that energy is what's driving utilities like Southern California Edison bonkers."

The most important leap forward in terms of generation, he says, may already have happened. "Twenty years ago, when we talked

about this, the question was, 'Can we harvest large amounts of energy from the sun and the wind? Will it work?' Now we've said, 'Yeah, we can do this,' but the question is, 'Can we build a system that can deal with energy that's produced intermittently as opposed to energy that's produced constantly?'"

Today's battery technologies were all designed for portable electronics and are far too small and short-lived to do the job, he says. "All batteries, no matter how well you treat them, eventually need to be replaced. For a product like your laptop computer, which you're going to replace in five years anyway, that's not a big deal. But for a product that's part of your energy grid, that's not a good situation. Our energy grid needs to be made of parts that will last at least 25 years. Some parts of our grid are 100 years old and still work."

Eventually, he believes, some new energy storage technology will be built from the ground up to meet that need, but it's unlikely to look like anything you'd recognize as a battery. "It's more likely to be heavy, solid, non-portable, thermal, chemical or mechanical energy storage, that will hold significantly larger amounts of energy than batteries designed for portable electronics."

What's Next for California Fruit Farmers?

The weathered sign on the old fruit stand at what remains of the last orange grove in Rialto, Calif., reads "Adams Acres" and "Since 1907." Owner John Adams '66, a third-generation fruit farmer with a passion for the perfect sweetness of a peach, waves his hand at a plum tree that is in full leaf but bears no fruit.

"There are so many people who come and say, 'I can't understand it. My apricot tree is not producing,' or 'My Santa Rosa plum is not producing and they were always so good.' They wonder if there's a disease or something," Adams says. "I say, 'No, it's global warming.'"

Adams is not merely nostalgic for the days when orchards blanketed the area. He has a Ph.D. in soil science from UC Riverside and a scholarly bent. He steps into a small house built by his grandfather to email an article from the journal *Agronomy* citing 89 reports and studies on climate change and its potentially devastating implications for California agriculture.

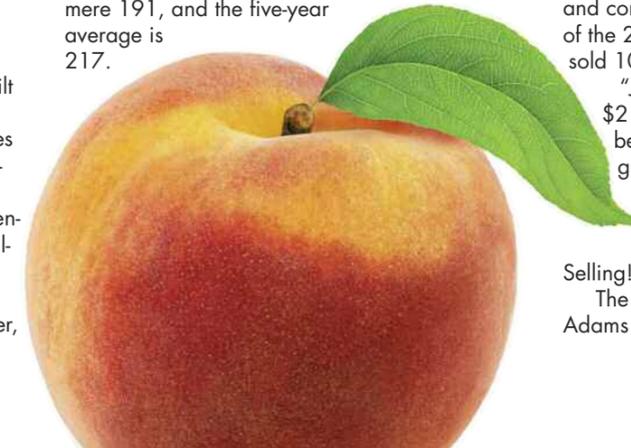
Among them: Before the end of the 21st century, 90 percent of the state's great Central Valley could be unsuitable for growing apricots, nectarines, peaches, plums and walnuts.

It is not just that the weather is getting hotter,

but that it no longer gets cold enough. Adams' focus is on chill hours, the number of seasonal winter hours below 45 degrees Fahrenheit.

"That is like a clock that tells the deciduous fruit tree it's time to start blooming, to put out your leaves and produce fruit," he says. "So many of the old favorites, we're not getting enough chill hours most years to have a decent crop, or to have any crop."

Some varieties of apricot and plum require 700 or more chill hours, though the Santa Rosa plum needs only about 300. At UC Riverside, the most recent seasonal report recorded a mere 191, and the five-year average is 217.



The average in the first decade of the century was over 300. Adams has watched the changes over more than 50 years. The prized Rio Oso Gem peach of his youth—a variety that requires 800 chill hours—is merely a memory.

"The only things that we raised in the old days that we still can are things like figs and pomegranates that need very low chill hours," he says.

Farmers can try switching to varieties that require fewer chill hours. They can also shift operations to higher, cooler altitudes. Adams is farming about 30 leased acres in Cherry Valley, and continues to farm the remaining two acres of the 20 his grandfather planted. The family sold 10 acres in the 1970s.

"Just now sold 7½ out of 9½ acres for \$2 million," Adams says. "I had to sell it, because I went broke maintaining the groves."

Next door on that plot, a new crop rises under the California sun.

"CrestWood Communities. Now Selling! Upper \$300,000s."

The development's name is bittersweet: Adams Grove.

What's Next in

Two words: Killer nanobots.

Two more words: Just kidding. Many of us got our introduction to nanomaterials through science fiction, where visions of lethal microscopic robots were once in vogue. Since then, the fictional outlook has gotten less bleak. "Now it's gone from killer robots to the things that give superheroes and supervillains their powers," jokes University of Washington research scientist Lewis Johnson '07.

But if you're waiting for killer nanobots, you're likely to be disappointed, according to both Johnson and Pomona Professor of Physics David Tanenbaum. If you look closely, however, you'll find that the real world of nanomaterials is already here—from the flash memory in your computer to the coating that makes your clothing shed spilled wine to the sunscreen you wear when you go to the beach.

And that's just for starters. As for what to expect in the future, Tanenbaum points to the fraudulent case

of the startup Theranos, which claimed to use nanosensors to do a complete blood analysis from a single drop of blood. "That was a big boondoggle and an awful sham, but the reason they were able to pull it off is because that technology is coming," he says. "The ability to use micromachined devices and sensors to do health care will happen, and the fact that there were some charlatans out there doesn't mean that it's not real."

In fact, Pomona Professor of Chemistry Mal Johal believes nanomaterials will have a major impact throughout the practice of medicine. "For example, you may see nanovehicles that can specifically target a tumor and deliver whatever agents into that tumor and destroy it in a very highly directed manner," he suggests. "I think medicine is where we're likely to see a lot of the big advances."

But whatever the next big thing in nanomaterials turns out to be, Johnson believes it is likely to be the result of a convergence of research in chemistry, physics, biology and engineering. For

Nanoscience?



example, he says, his own post-doctoral work was in a cross-disciplinary technique sometimes called "biological mimicry." In this case, he was looking at the enzyme nitrogenase, which certain bacteria use to take nitrogen from the air to make ammonia. "If we want to replicate what nitrogenase can do industrially, it needs to be put in a material that could be scaled for use in large factories," Johnson says. And since the current industrial method of producing nitrogen fertilizers requires such high temperatures that it burns up about two percent of the world's energy supply each year, creating a

thrifter process would have a huge impact worldwide.

Johnson also believes that a similar convergence of disciplines is coming on the educational front. He got his own introduction to the field as a first-year student at Pomona, in Tanenbaum's first-year seminar class, Nanotechnology in Science and Fiction. And he recently joined his mentor Johal to co-author an expanded new edition of the chemistry textbook *Understanding Nanomaterials*, which now crosses over into related areas of biology and physics. "It's probably the first undergraduate book writ-

ten at that level, where a sophomore student can take this with just general chemistry, general biology, general physics preparation," Johal explains.

So will nanomaterials be a hot new interdisciplinary field at the undergraduate level? "We're starting to see universities forming programs specifically in nanomaterials, but as to whether it's going to become a stand-alone field, that seems to be an open question," Johnson says. "But as far as people getting degrees in nanomaterials at the undergraduate level, I think that's something that would be plausible in the near term."

WHAT'S NEXT IN TECHNOLOGY INVESTING?

Artificial Intelligence? Think again. Business proposals for technology on artificial empathy are already on the desks of venture capitalists and technology investors such as Melish "Matt" Thompson '96 who are always looking for the next big thing to invest in.

Thompson is the senior vice president for private equity and venture capital at Skyview Capital where he has his finger on the pulse of Los Angeles investing. Currently, the focus is on FAMED, an acronym describing the areas in which L.A. investing is concentrated: fashion, autonomous technology (artificial intelligence or AI, drones, self-driving vehicles), media, e-sports/gaming (watching people play games and sports online) and dating startups.

While AI is still a hot and growing industry, Thompson says they've recently invested in a company developing artificial empathy technology that can help you with a problem and think about your feelings.

And you can forget about Bitcoin—that's old news, says Thompson. "The new thing is blockchain. The underlying technology can be used to do a range of applications in health-care and media—using blockchain as a secure database not just for currency."

Lastly, Thompson says he's already receiving business plans for mining asteroids—yes, you read that right: "Space exploration, asteroid mining... It might be sooner than you think."

WHAT'S NEXT IN Digital Storage?

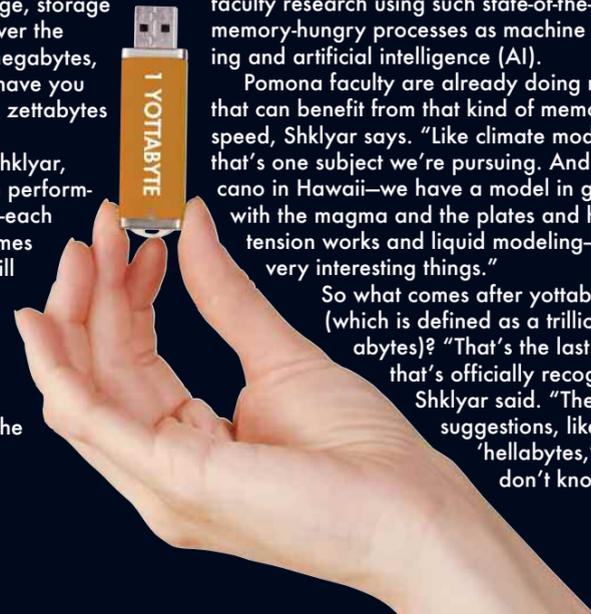
At the dawn of the digital age, storage was measured in kilobytes. Over the years, we've gotten used to megabytes, gigabytes and terabytes. But have you heard of petabytes, exabytes, zettabytes and yottabytes?

You will soon, says Asya Shklyar, Pomona's first director of high performance computing. Those terms—each indicating a capacity 1,000 times larger than the one before—will become more and more common in the years ahead. And here at Pomona, that future may be nearer than we think, she says, as the College is already gearing up to provide the kind of computing speed and memory needed to support

faculty research using such state-of-the-art and memory-hungry processes as machine learning and artificial intelligence (AI).

Pomona faculty are already doing research that can benefit from that kind of memory and speed, Shklyar says. "Like climate modeling—that's one subject we're pursuing. And the volcano in Hawaii—we have a model in geology, with the magma and the plates and how the tension works and liquid modeling—a lot of very interesting things."

So what comes after yottabyte (which is defined as a trillion terabytes)? "That's the last one that's officially recognized," Shklyar said. "There are suggestions, like 'hellabytes,' but we don't know yet."



WHAT'S NEXT IN Artificial Intelligence?

Imagine a future in which robots screen job candidates, universities introduce artificially intelligent tutors into classrooms and news services use a combination of social media and artificial intelligence (AI) to roll out breaking news.

Well, that future is now. Preliminary success and our fascination with computers are leading to the exploration of a myriad of applications for artificial intelligence. Such is the interest, that the French government will spend \$1.85 billion over the next five years to support research in the field.

But, there are some serious limitations to AI, says Gary Smith, Pomona's Fletcher Jones Professor of Economics and author of the upcoming book *The AI Delusion*. "Thus far, artificial intelligence is designed to perform narrowly defined tasks, and it does it really well," says Smith. "But moving outside of those tasks, computers have a lot of trouble. It is particularly evident when it



requires knowledge of what you're doing." Smith argues that artificial intelligence still lacks integrative thinking and has trouble deciphering meaning or patterns without context. He adds that in order to improve AI, researchers are studying how to get computers to think more like human brains, including research into how children learn.

"Our fascination with computers has led us to believe that artificial intelligence can make smarter decisions than humans," says Smith.

This is worrisome when AI may be used for algorithmic criminology, for example. Courts all over the country are using computer models to make bail, prison-sentence and parole decisions based on statistical patterns that may be merely coincidental, but cannot be evaluated because they are hidden inside black boxes.

"At this point of development of AI, we should be very skeptical of turning important decisions to computers," says Smith.

"The danger is not that computers are smarter than us. The real danger is that we think computers are smarter than us. And that's not the case."

What's Next in Cyber-Threats?

When Professor of Media Studies Mark Andrejevic started writing about what he calls “the surveillance economy” back in 2001, “I was considered to be a very angry, cranky, dystopian naysayer,” he recalls. “But recently—and especially in this past year—it’s become a commonplace that we live in a surveillance society in which our information is leveraged for profit. And so, it’s a weird feeling of vindication and, also, helplessness.”



Vindication because his dire warnings have clearly come true as companies and institutions comb our interactive lives to build bigger and more intrusive profiles.

Helplessness because he thinks it may already be too late to do anything about it.

That’s partly because sites like Amazon and Facebook have become a way of life, and partly because new technologies are creating bold new ways for information to be gathered, marketed and leveraged—not just to anticipate what we might buy, but to parse how we think, what our vulnerabilities are and how they can be exploited.

One concern, he says, is the proliferation of “smart” devices—from speakers that answer our queries and play our favorite music to appliances that know how we like our toast or coffee. “These are very convenient devices,” he admits. “At the same time, they are a new frontier in data and information collection. There are already patents floating around for how to use the information that can be picked up through smart speakers in the home in order to anticipate consumer desires and craft marketing campaigns. And as those interfaces become increasingly interactive, they generate new forms of monitoring and surveillance. Do we really want our washing machines and microwaves keeping track of the rhythms of our daily lives?”

Another assault on our privacy, he says, involves advances in such technologies as facial recognition, gait recognition and license-plate reading. “We’ve always thought of public space as being associated with the anonymity of the crowd,” he says, “but that’s fast eroding. You’re no longer moving in a space where your identity is largely unknown and the traces of your activities ephemeral. Soon every action you take walking down the street will be linked to your identity.”

How might that look? Consider the times you’ve searched for something on a website, then found ads for it everywhere you went online. Now imagine that happening as you pass signs in a mall or even billboards on the highway.

One device that Andrejevic worries about in particular is the fitness tracker, which is constantly gathering information about your health and storing it online. Sounds great, until you think about that information in the hands of your insurance company. “As Obamacare gets dismantled, which seems to be the case, insurers will be able to discriminate based on pre-existing conditions again,” he says.

“And, you know, this type of information is very useful for companies who want to do that type of screening.”

Meanwhile, in the world of politics, the use of voter profiles to manipulate the vote is the wave of the future. “Now campaigns know so much about voters that they can custom-tailor messaging, both to rally supporters and to attempt to suppress the participation of opponents’ supporters,” Andrejevic notes. “I don’t believe that Cambridge Analytica had anywhere near the influence they claim for themselves, but the political model they embraced will continue to get more sophisticated.”

To date, Andrejevic says, many of his dystopic predictions have come true, which makes him deeply pessimistic about the future. “But working with the students here actually makes me quite optimistic because our students are wonderful,” he says. “If there’s any hope, it’s the students. I have those moments when I’m thinking, ‘Can you guys take over now? Because we need you.’”

WHAT'S NEXT IN SOCIAL MEDIA?

When he’s traveling, Eric Oldrin ’95 likes to make his kids laugh by connecting with them on Facebook Messenger with bunny ears and a cute little bunny mask on his nose. Of course, Facebook’s head of emerging platforms doesn’t really put on a bunny mask—it all happens in cyberspace, using augmented reality (AR).

AR is the digital technology that made *Pokémon Go* such a sensation. Today, it’s bringing a touch of fantasy to the world of social media, and Oldrin thinks we’ve only skimmed the surface of what’s to come. For instance, a variety of brands—from Sephora to Nike—are using AR in their marketing, for both playful and practical reasons. As an example, he cites a new Messenger experience that allows potential drivers to see what a car from Kia might look like in their driveway. The possibilities, he believes, are wide open.

And then, of course, there’s virtual reality (VR), which requires a bit more equipment, such as Facebook’s newly released Oculus Go—a headset that allows you to step into a digitally created world. Oldrin is intrigued by VR’s potential to make people feel like they’re in a room together, even when they’re actually oceans apart.

“In VR, there’s an incredible opportunity to defy distance and to create a sense of presence across borders,” he says. “Let’s say, you and I decide we’re going to go see U2 in Sao Paulo together. We’ll be able to do that by being there at the same time in this virtual space. I probably would never go to Sao Paulo to see a concert in real life, but in virtual reality, I’ll have that opportunity.”

Indeed, for Oldrin, that’s what the future of Facebook and other social media is all about—the ongoing search for better and more compelling ways to bring people together.



WHAT'S NEXT IN Space Exploration?

As we near the 50th anniversary of the first moonwalk, Colleen Hartman ’77 believes the next chapter in human space exploration is not far away. “When I talk to high-school and younger groups, I always tell them that I’ll be alive when the first

human puts *her* foot down on Mars, and they always laugh,” she says.

But what brings Hartman to work each day as director of the Sciences and Exploration Directorate of NASA’s Goddard Space Flight Center is the extraordinary science that continues to be done through spacecraft with no astronauts aboard. As an example, she points to a couple of new spaceborne telescopes that are likely to kick the search for exoplanets—planets circling other stars—into high gear.

Although the number of confirmed exoplanets has exploded into the thousands since the launch of the Kepler spacecraft in 2009, we still know next to nothing about them. With the launch of TESS (the Transiting Exoplanet Survey Satellite) in April 2018 and the planned launch of the James Webb Space Telescope in 2020, NASA hopes to change that, Hartman says. “Whereas Kepler looked at only a tiny fraction of the sky,” she explains, “TESS will look for extrasolar planets all around our closer neighborhood, where hopefully, we can have follow-up observations with the James Webb Space Telescope.” Those observations, she says, should give us our first detailed analysis of the chemical makeup of an exoplanet’s atmosphere.

Other upcoming NASA missions of particular note include:

- **The Parker Solar Probe** (*Planned launch: August 2018*)—This probe’s orbit will carry it to within 3.8 million miles of the sun, which is actually inside the sun’s corona. Able to withstand temperatures of up to 2,500 degrees Fahrenheit, the probe will study such things as the solar wind and mass

ejections. “This mission will help us understand the relationship between the sun and the Earth in ways we never could before,” Hartman says.

- **The Wide Field infrared Survey Telescope or WFIRST** (*Planned launch: 2020*)—WFIRST will join in the search for exoplanets, but it will also play a key role in the effort to solve the most baffling mystery in astrophysics today. “Approximately three quarters of the universe is made of something we call dark energy, because it doesn’t interact with anything and we don’t really understand what it is,” she says. “WFIRST will be looking for clues about dark energy as well.”

- **The Europa Clipper** (*Planned launch: sometime in the 2020s*)—This probe will investigate the habitability of Jupiter’s icy moon Europa. “To me, this is one of the most exciting things at NASA,” Hartman says. “When we’re looking for life on other planets, we’re looking for water, but it turns out that here in our own solar system, you can have a frozen icy moon, and under the frozen surface, a liquid ocean. That’s Europa. I like to joke that if there’s life in that liquid ocean, they’re not going to be very good astronomers.”

One thing Hartman says she can’t predict is the practical benefits that will accrue from continued exploration of the solar system and beyond, but she’s sure there will be many of them. “There’s plenty to discover and investigate, and I do think there’ll be a lot of practical output from some of these investigations, but you don’t necessarily know beforehand what the spinoffs will be. It’s serendipitous, and that’s part of the joy.”

WHAT'S NEXT FOR THE SAGEHEN?

Pomona College's mascot, the sagehen—the sage grouse in the real world—needs a “lek” up.

A rare collaboration between conservation and energy interests came together to protect the sage grouse's mating habitat—known as leks. But the U.S. Interior Department led by Secretary Ryan Zinke is now re-examining the plan in order to prioritize energy development, leading to an uncertain future for our beloved mascot.

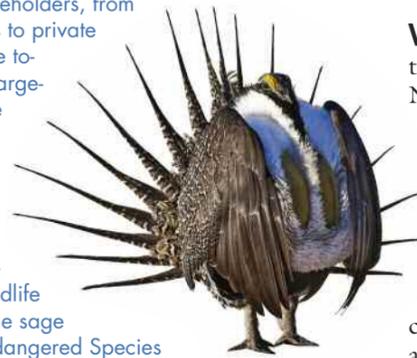
Jessica Blickley '02, an ecologist at Pasadena City College, studied the sage grouse as a graduate student at UC Davis and lays out the history, present and potential future of Cecil's brethren.

Historically, the sage grouse's habitat spanned the western United States, but as grazing land overtook wild land, as invasive grasses crept over native sagebrush, as wildfires grew in ferocity and frequency, and as natural gas, oil and wind developments popped up, the sage grouse's domain has shrunk. And with shrinking domains, explains Blickley, there's less space for the sage grouse to puff up their chests and attract mates. That means shrinking populations.

That's why, a few years ago, a diverse group of concerned stakeholders, from state governments to private landowners, came together to craft a large-scale sage grouse conservation plan focused on protecting the bird's natural habitat. In 2015, this multi-state effort led the U.S. Fish and Wildlife Service to keep the sage grouse off the Endangered Species Act (ESA), a decision the Audubon Society saw as a nod to the ongoing success of the plan.

“The conservation plan seemed to be working well until 2017 when Zinke decided he was going to put this conservation plan under review and change it,” says Blickley. “In addition, there is currently a bill in Congress that would specifically prevent future listing of the sage grouse under ESA. Due to these federal actions, the future of the sage grouse is much less certain than just a few years ago.”

But Blickley hasn't lost hope. “My hope comes from the state level. In the state of Wyoming, where 40 percent of the sage grouse are found, the Republican governor believes strongly in the collaborative conservation plan, so hopefully many of the state level regulations will go into place.”



What's Next in Biodiversity?

We are in the middle of a mass extinction event, says Professor of Biology Nina Karnovsky, and, this time, it's our fault.

“It's called the Anthropocene Era because it's being caused by humans,” says Karnovsky, who specializes in the study of seabirds. “The warming of our planet, the destruction of habitat, pollution and other contaminants are causing widespread extinctions. It is really grim. I don't think I would be able to cope if I didn't try every day to do something to ameliorate this overwhelming thing that's happening around us.”

Paying attention is one way to make a difference, says Karnovsky, who assigns her students to keep journals and record their observations.

“It's extremely important to be a great naturalist and to keep track of what you're seeing around you, and to notice and document that,” she says. “If you aren't really noticing the change in the species, then you won't notice when they're gone.”

In fact, many species that we didn't know about are already lost, says Karnovsky. It's not just about climate

change, but habitat destruction, harvesting, oil spills and other things that are causing a “vortex of extinction.” And when a population gets impacted and can't recover, that affects other species, including humans.

“It's not esoteric. It's a social justice issue,” says Karnovsky. “There isn't enough food to eat because the ice has changed; the marine mammals aren't coming into the fjords where they used to come and people used to hunt them. So for these communities, this is life or death.”

Compounding the problems in identifying and studying endangered species are cuts to research made by the current administration, making it harder for researchers to keep up sustained studies, where they return to the same locations to test for changes that show a species has become more vulnerable.

For Karnovsky, the warnings are clear and call for some big decisions about what direction we're going. “We need to tell our leaders, and it has to be a multi-pronged approach.” She says. “We have to be active on political fronts, but also in our daily lives.”

What's Next for the Blind?

The 1970s TV show *The Six Million Dollar Man* (which now seems quaintly underpriced in today's dollars) brought the word “bionic” into general use, with sci-fi connotations that it has never completely shed. But one area of prosthetics where fact has begun to overtake fiction is in the world of bionic vision. In 2015, the Honolulu-based ophthalmologist Dr. Gregg Kokame '78 was the first physician in the Asia-Pacific region to implant a bionic eye, giving a patient who had been blind from hereditary retinal disease the gift of sight.

The process involves inserting into the eye a 60-microelectrode implant, which transfers impulses from a tiny camera attached to a pair of glasses directly to the



patient's retina. “It does not allow people to recover reading vision,” he explains, “but they do recover the ability to ambulate, the ability to see figures, the ability to see somebody come into a room. They can even pick out patterns. So they can do a lot more than they could do before.”

Future bionic eyes, Kokame says, may permit patients to see in color or to read a book, but first researchers will have to break the brain's code for color vision and develop even tinier and cooler microelectrodes so that more of them can be added to the matrix without overheating the eye. “Amazingly,” he adds, “for patients whose eyes or optic nerves are not working at all, they are trying to bypass the eye completely and implant electrodes directly on the brain.”

WHAT'S NEXT IN

BIG DATA?

For many of us, the words “big data” have taken on sinister connotations, evoking stories of data breaches, manipulation and abuse. But in medicine and pharmacology, Jan Lethen '93 believes big data is already saving lives—and in the future, it's going to get even bigger and save many more.

As director of statistical programming in observational research at the biopharmaceutical firm Amgen, Lethen works with a storehouse of anonymous data from over 100 million patients worldwide. Statistical research based on that data, he says, permits companies like Amgen “to support product safety, to profile diseases, to design more effective clinical trials and to forecast populations that would most benefit from our drugs.”

As a sign of the future, Lethen points to a new app that pairs with Apple's iWatch, enabling patients to link their health records to their biometric data, potentially making that linked data available for researchers. “We're

seeing more and more types of data being brought together and linked together,” he says. “So that might

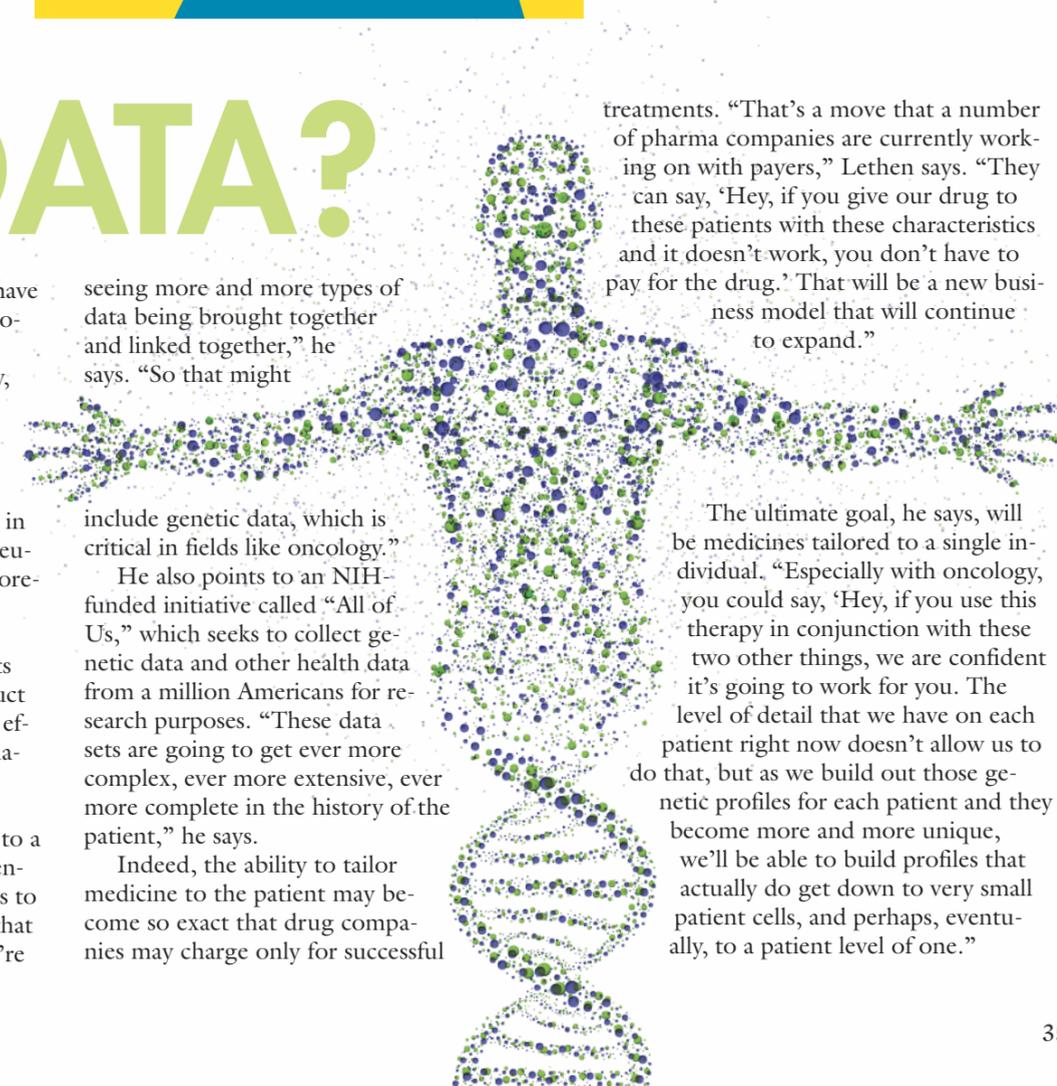
include genetic data, which is critical in fields like oncology.”

He also points to an NIH-funded initiative called “All of Us,” which seeks to collect genetic data and other health data from a million Americans for research purposes. “These data sets are going to get ever more complex, ever more extensive, ever more complete in the history of the patient,” he says.

Indeed, the ability to tailor medicine to the patient may become so exact that drug companies may charge only for successful

treatments. “That's a move that a number of pharma companies are currently working on with payers,” Lethen says. “They can say, ‘Hey, if you give our drug to these patients with these characteristics and it doesn't work, you don't have to pay for the drug.’ That will be a new business model that will continue to expand.”

The ultimate goal, he says, will be medicines tailored to a single individual. “Especially with oncology, you could say, ‘Hey, if you use this therapy in conjunction with these two other things, we are confident it's going to work for you. The level of detail that we have on each patient right now doesn't allow us to do that, but as we build out those genetic profiles for each patient and they become more and more unique, we'll be able to build profiles that actually do get down to very small patient cells, and perhaps, eventually, to a patient level of one.”



WHAT'S NEXT IN TREATING MENTAL ILLNESS?

What's next in the treatment of mental illness will be a direct outcome of what's now, according to Pomona College Professor of Psychology Sara Masland. Two developments in the field may, over time, transform treatment of psychological disorders.

The name of the first development sounds tricky to understand, but it's really pretty straightforward. The National Institute of Mental Health started a framework called RDoC (Research Domain Criteria) that encourages researchers not to stick strictly to the textbook—or in psychological cases, standard diagnostic manuals—when studying disorders. Instead, they look more carefully at a person in all their complexities.

“We now have a good deal of information that suggests that the lines we draw are not always appropriate,” says Masland. “This framework seeks to take a step back and understand differences in the functioning of basic human processes across multiple levels and units of analysis.” By levels of analysis she means genes and behavior, and she's talking about processes like reward processing and basic cognition.

More nuanced diagnoses dovetail with a second development: research that uses mathematical models to understand which symptoms and experiences are central and which may be caused by these primary symptoms.

“As a clinician, I might see a patient come in who reports five symptoms, and I can conclude that they co-occur,” says Masland. “But what is hard to get a good sense of is how these symptoms contribute to one another. Which came first? Does the presence of one cause or exacerbate the presence of another?”

If a psychologist can see a map of symptoms, she says, treatment can be more targeted.

These two developments offer a lot of promise for the future. Masland foresees the

possibility of a move away from relying on flawed (yet still useful) diagnostic categories toward a more empirical approach. Over time, she hopes this will destigmatize psychological disorders and build compassion as well as clarity. With the new model of symptom mapping, Masland says targeted treatment will become more personalized and efficient.



Masland also believes both of these approaches will change how we understand the basic mechanisms of psychopathology. That change in understanding will, in turn, change the treatment landscape. Ultimately, her hope is that “they will lead to better understanding of human experience more broadly.”

WHAT'S NEXT IN HEALTH CARE APPS?

Rising costs and access to health care are issues that weigh heavily on Americans and their families. These issues deepen when it comes to mental health. Common mental illnesses can be extraordinarily disabling, and yet, many patients do not receive treatment.

Stephen Smith '17 believes technology will be part of the solution.

After winning his own battle with obsessive compulsive disorder (OCD), the economics grad has used his experience to help others by creating a smart-phone app that provides on-the-go treatment to fight the condition.

The app, which he dubbed nOCD, records real-time data, offers guided cognitive behavioral exercises and allows people with OCD to join in-app support communities at any hour of any day. With this technology, users get 24/7 clinically approved care and are connected to a community that understands them.

“People are always wondering how you're going to treat mental illness, given the shortage of licensed mental health clinicians,” says Smith. “And the answer is through technology.”

Smith sees this technology trend not only for mental health but for healthcare overall.

“The healthcare industry today is going ‘more mobile’ and ‘more digital’ given that technology offers consumers an always-on, personalized treatment experience,” he says. “Since the majority ‘at-risk’ populations are already actively engaged in technology, utilizing digital solutions to deliver care can have both an immediate clinical as well as an economic impact for both the patient and provider.”



WHAT'S NEXT IN

Maternity Care?

Which nation in the “developed world” spends the most on maternity care? You guessed it—the United States. And which has the highest maternal mortality rate? Same answer, and the numbers aren't even close.

“We are spending the most and getting the least,” says Melissa Hanna '09, founder and CEO of Mahmee (pronounced “mommy”) “And even though we have a slowly but surely declining infant mortality rate, it's still too high.”

That's why Hanna founded Mahmee, a secure online platform designed to bring together a network of education and support services that expecting and new mothers and their babies need in order to thrive—from early pregnancy through the first year of an infant's life. Hanna calls it “bundling care,” and she notes that the same model has been used successfully to manage other health-related conditions that require attentive, long-term maintenance, such as diabetes and chronic heart failure.

“Being pregnant is not considered being sick,” she says. “But I like to say having a baby is like a hormonal boomerang. Your body is prioritizing the baby over you, and so, if you think of the experience of childbirth as being this acute, physical trauma on the body, on the hormones, on the brain, why don't we treat that as something that a person should be recovering from? If we did, it would totally change our approach to health care for women.”

Part of the problem, Hanna says, is our disconnected health care system. “One doctor, the pediatrician, is responsible for the baby, and a completely different doctor in a completely different office, using a completely different system of tools and software, is keeping track of

the mother's health. Mother and baby are connected in the womb and then outside of the womb for months after, and yet the way that we take care of them is so separated.”

In addition, most Americans don't have the family support systems that mothers rely on in more traditional cultures. “We're all transplants,” Hanna says. “We move around the country, away from our parents, away from our grandparents, so we end up having children in environments where we're very isolated.”

When systemic change finally comes, Hanna believes, it's probably going to look a lot like what other countries have done for years. “I think when we look to the future, we can look to other countries like France, like England, having a model of sort of nurse-midwifery and in-home health care,” she says. As an example, she points to the growing demand for doulas. “We end up creating a whole new industry—the industry of being a doula, which is basically being a home health assistant after delivery. That has become part of the market share in the United States, and I think that's going to continue.”

Online services like Mahmee, which connect expecting mothers with networks of other mothers and health care experts, are also an important part of the future, Hanna believes.

“In the next few years, we're going to see a big shift, where people start to take their Lamaze classes online, where mothers join video chat support groups,” she says. “Our company is starting to offer those, as an example, and I know that we're not the only ones. I think that's going to be a big way for women to connect and support each other online.”



What's Next in Etiquette?

The queen of good manners, Emily Post, died in 1960, but great-great grandson Daniel Post Senning '99—one of the editors of the 19th edition of *Emily Post's Etiquette*—is helping to carry forward the family business.

And it's not all about forks, knives and seating arrangements.

In the world of etiquette, Senning says, the only constant is that there's always something new to grapple with. The advent of the home telephone brought with it a fear of the end of family life. The explosion of social media raised questions about navigating online spaces. A globalized world has brought with it cultural quandaries in international business meetings.

So what's next?

For one thing, big shifts are coming with increased questions about gender and gender identity, Senning says. Traditional gender courtesies will need to be adjusted.

The smartphone is also challenging social norms. "People are going to take more and more seriously how we show respect to each other and are able to shut off from the digital world, from the information that's flowing around us all the time, and connect with each other as people," he says.

Senning also predicts that the legalization of cannabis in California and other states will affect how we entertain at home. Do you offer an after-dinner joint? How do you navigate a guest who is high? Or a relative who was raised to believe that cannabis was criminal and immoral?

But for Senning, no matter how much

things change, the organizing principles of etiquette always stay the same: respect and flexibility.

"Change is something we've survived before as a society, as individuals, as cultures all over, and things will continue to change. Changing with them, frankly, is something that we've done before."

WHAT'S NEXT IN

BALLROOM DANCE?

A world transfixed by TV shows like "Dancing with the Stars" will soon be captivated by a new look, as more gender-fluid dancers take the floor, says Denise Machin, assistant director of the Smith Campus Center and director of The Claremont Colleges Ballroom Dance Company.

"The future of ballroom dance is one that finds ways to stay relevant to new dancers, expanding conceptions of what a ballroom dancer looks like in body type, gender presentation and ethnicity," Machin says.

The Claremont Colleges' dance troupe,



which just turned 20 years old, is known for its progressiveness, Machin notes, including actively placing students in

dance roles not historically associated with their presenting genders.

While some colleges are actively resisting these new dance moves, and it may take a while for them to reach the small screen or the professional dance floor, Machin says inclusivity of gender expression is a centerpiece of the ballroom dance program at Pomona, adding: "Institutions like Pomona are educating a generation of artists that expect a critical and interdisciplinary approach."

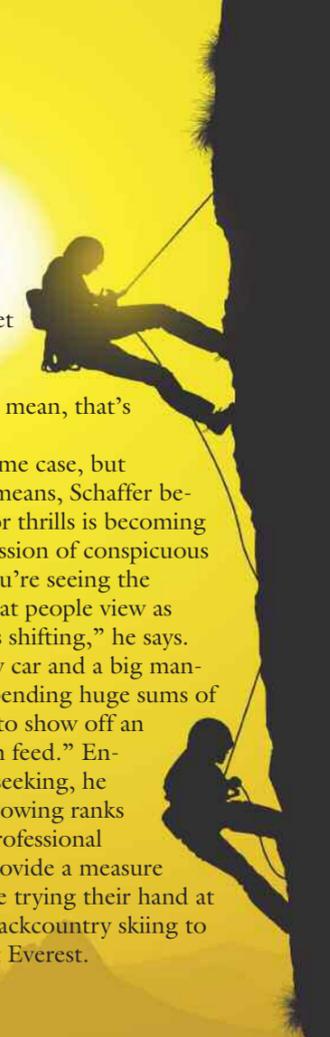
WHAT'S NEXT FOR THRILL SEEKERS?

When Evel Knievel tried to jump the Snake River Canyon in 1974, stunts were kind of an oddity. "Now, that's every Red Bull commercial," says Grayson Schaffer '01, editor at large at *Outside Magazine* and a co-founder at the production company Talweg Creative. After all, he points out, when the public has seen it all, the only way to grab the limelight is to up the ante, usually with a brand paying the way.

Schaffer, who has covered people doing everything from climbing Everest without oxygen to kayaking down waterfalls, is frequently interviewed by national media about the world of adventure, but he knows he hasn't seen it all—not yet. As a recent example of death-defying acts that push the limits, he points to climber Alex Honnold's ascent of the sheer vertical wall of El Capitan without safety gear. "You're bringing no equipment," he says, "just your climbing shoes and a chalk bag,

and you end up climbing 2,500 feet with no ropes, no way to retreat, no way to bail out—I mean, that's pretty crazy."

That's an extreme case, but among people of means, Schaffer believes, the quest for thrills is becoming the ultimate expression of conspicuous consumption. "You're seeing the benchmarks of what people view as wealth and success shifting," he says. "Instead of a fancy car and a big mansion, people are spending huge sums of money to be able to show off an enviable Instagram feed." Enabling such thrill-seeking, he says, will be the growing ranks of highly skilled professional guides who can provide a measure of safety for people trying their hand at everything from backcountry skiing to summiting Mount Everest.



WHAT'S NEXT IN

Funerals?

From Pokémon to the Marie Kondo decluttering craze, Japanese culture quickly crosses the Pacific. Costly funerals for furry friends could be next.

In Japan, mourners attend services for dogs, cats, even hamsters or birds, sitting solemnly during ceremonies officiated by Buddhist priests. Cremated remains are buried in vast pet cemeteries or stored in mausoleums that look like huge stacks of school cubbyholes, filled with flowers or small offerings of food for the afterlife. Granite markers abound, along with signs with words such as "amour," "never forget," and "love hurts" in various languages.

"This is big money. Somebody's spending thousands," says Pomona College Sociology Professor Jill Grigsby, who has conducted research on family life and animals in Japan while teaching in the Associated Kyoto Program, a joint effort of Pomona and a group of other colleges.

In the past, Japanese pets might have been buried in a yard, Grigsby says. "Now, many fewer people live in single-family homes." Another factor might be the Japanese reverence for ceremonies.

Demographics may play a role as well. "Part of my explanation is that when you have very low fertility—and right now in the United States we're experiencing extremely low fertility, and Japan has one of the lowest fertility rates of any country; so does Korea. People still want to create families; so they think of other ways of putting families together, which means friends, but also pets."

Pet cemeteries exist in the U.S., but not so much formal funerals. Yet the family as it sees itself is sometimes depicted in stick figures on the back of an SUV: Mom, Dad, two kids and sometimes a dog and cat. "Animals really are members of the family," Grigsby says.

WHAT'S NEXT IN

Outdoor Recreation?

Move over Bear Grylls. Make way Ron Swanson. Take a back seat *Naked and Afraid*.

Change is coming to the world of outdoor recreation, says Martin Crawford, director of Pomona's Outdoor Education Center (OEC). There will still be plenty of room for the extreme outdoorsmen like Grylls and the mustachioed hunters like (the fictional *Parks and Recreation* character) Swanson, but there's also a growing space being made for women, people of color, queer and trans folk and other groups who in the past, have not felt comfortable or welcomed in the outdoors.

Making the outdoors experience inviting for all Pomona students has been a central part of the OEC's mission for years now—and Chris Weyant, coordinator at the OEC, says the world of out-

doors recreation is finally catching on, at least in higher education. The OEC, which coordinates the Orientation Adventure (OA) experience for all incoming new students and other outdoor education opportunities throughout the year, recruits OA leaders that represent the diversity of the new class, offers a variety of adventures at different levels, and brings in guest speakers from organizations like Latino Outdoors and Outdoor Afro. Last fall, they even added tree climbing (that's right, tree climbing—not rock climbing) to their Outdoor Leadership class in an effort to draw a wider net of students.

Crawford says it's important to rethink what the outdoors offers in terms of recreation and that means changing our own perception of how recreational outdoor spaces are used: "If you don't already feel comfortable in the outdoors, you're going to think 'Oh, this is not for me' and you just keep on driving [away from a state park]. But as we start changing what you do there and how we recreate, it'll slowly start to change."



WHAT'S NEXT FOR WRITERS?

In films, they're famously known as continuity errors. But these annoying little bloopers also creep into novels. For example, in J.K. Rowling's *Harry Potter and the Prisoner of Azkaban*, a griffin first seen tied to a tree later finds itself tied to a fence.

While writing his 900-page tome *Sacred Games*, novelist Vikram Chandra '84 found the task of avoiding such errors maddening. Keeping accurate track of his huge cast of characters over the novel's 60-year span was a constant struggle. "It just feels like doing manual bookkeeping with a goose quill and a double ledger," he says.

Certain that someone must have designed software to help, he did some research and found to his surprise that no such software existed. So, after finishing his novel, Chandra—who is also a programmer and self-described "geek"—decided to create his own.

"I did a couple of attempts myself," he says, "and then realized that putting everything into a database or spreadsheet didn't really solve the problem, because there was no connection to the text. You still had to remember every time you made a change in the text to update your data, and the other way around. So then, my question was, 'Why not attach knowledge to text? Why can't we keep the text and information about the text in sync, as it were?' And that turns out to be a much, much harder problem, for various technical reasons."

Over the following decade, the seemingly insoluble problem continued to prey on his mind. Then one night, while he was lying in bed, the answer suddenly came to him.

And so, in 2016, he joined forces with an expert programmer, Borislav Iordanov, who took his raw insights and converted them into actual code. Together they founded a company named Granthika—a Sanskrit noun for "narrator." Their software—also

called Granthika—is now patent-pending and in beta testing, and they hope to release a version for fiction writers in early 2019. Future versions may be geared to the needs of other types of writers, from journalists to scientists.

Chandra explains: "The idea is that you'll write, 'Jack met Mary at a café,' and the software, if you want it to, will prompt you, saying, 'Is Jack a person? Is Mary a person? Is café a location? Does this entire sentence represent an event?' When you say yes to those questions, you're creating knowledge, facts that are attached to the text at a very intimate level."

Since writers may not want to be interrupted while writing, they can also turn that function off and go back to it later, but the final result is the same—a collection of metadata, linked directly to the text itself, to help the writer maintain the illusion of reality.

Recently, as *Sacred Games* was being transformed into a TV series on Netflix, Chandra wished Granthika had been available when he was writing it. To trace all of the story's complex, interwoven timelines, the series' creators had to buy dozens of copies of the book, transfer the info to index cards and arrange them on a wall. With Granthika, he says, "what we're able to do is have a menu choice that says, 'Export Ontology,' and when you hit that, it just takes all the knowledge of the work that you created and puts it in a package so that somebody else could then import it."

But Chandra's vision doesn't end there. Granthika also has him thinking about how the interactive nature of this new software might lead, someday, to the creation of new forms of interactive or multimedia books.

"Since we're making it so easy to attach metadata to text, our dream is that we'll be able to make it possible for a writer to say, at the time of writing, 'When the reader reaches this sentence and goes past it, dissolve into this moving image that will last for three seconds,' and so, you see a bird walking across the beach, right? So in a sense, what you're doing is programming a book as much as you're writing it. And a reader is able to interact with the book—let's say, adjust reading difficulties, or read the same novel from the point of view of different characters, all that good science-fiction-fantasy stuff we've been dreaming about for the last two or three decades."

WHAT'S NEXT AT THE MOVIES?

She's smart. She's funny. She's a 20-something-year-old Saudi woman growing up on the Moon. That's Jazz Bashara, the protagonist of Andy Weir's newest sci-fi book, *Artemis*, and a soon-to-be-made feature film by producer Aditya Sood '97.

"She resembles [*The Martian*'s] Mark Watney in spirit and intellect but is otherwise a completely fresh hero for the 21st century," explains Sood, president of Genre Films, the production company behind the hit films *The Martian*, *Deadpool* and *Deadpool 2*.

This newest project for Sood is part of the growing change in Hollywood that Sood is excited to be a part of. "The biggest thing happening in entertainment right now is that there's more and more options for viewers than ever before—the era of one-size-fits-all is going away," says Sood. "You're seeing that manifest itself in an increase of representation, in terms of the stories that are being told, the people telling the stories, and the people representing those characters on screen."

"The superhero world—movies like *Wonder Woman* and *Black Panther* and the upcoming *Captain Marvel*—the success of those movies is no surprise. The smartest filmmakers and studios are getting ahead of this."

Sood adds that there's still a long way to go but audiences will continue to enjoy more diverse

films because they continue to demand stories that reflect themselves.

He wants Pomona readers to heed his words: "I want people who read this, whether they're students or alumni, who haven't thought before that [the entertainment industry] speaks to them because of their backgrounds, that we need more writers, executives and producers who come from diverse backgrounds who can tell these stories authentically."



WHAT'S NEXT FOR MANGA?

Sales of the Japanese graphic novels and comic books known as manga have been falling inside Japan itself since the mid 1990s—a fact that Carl Horn '91, manga editor for Dark Horse Comics, attributes to the long decline in the nation's population—especially at the young end of the spectrum. "Even though Japan has the deserved reputation as a country where adults read comics, the top-selling titles are your *Dragon Balls*, your *Narutos*, your *One Pieces*, your *Attack on Titans*," Horn says. "In other words, manga that were made for younger readers."

That means the future of the manga industry is increasingly outside Japan, Horn says. And for American readers, that offers both pluses and minuses.

On the plus side, manga creators are starting to become more accessible to their foreign readers—appearing slightly more often at conventions and responding on social media. On the minus side, however, Horn worries that their stories may lose some of their Japanese flavor.

"The fans don't necessarily want to see manga becoming 'more American,' whatever that means," he says, adding that for most manga readers, the cultural differences are an important part of the attraction. "However, what they would like to see, I think, are more personal connections with the creators—that is, Japanese creators getting more involved with their English-language readership."

One thing he doesn't think will change is the special attraction manga holds for people who feel like outsiders. "Manga is a medium where people who wouldn't be cast as heroes in traditional American stories, can be," he says. "You don't necessarily have to look the part. People considered oddballs, you know, people who dress weird, people with weird hair—in manga they can still be the heroes of an action epic."

WHAT'S NEXT FOR ALT ROCK?

A solar-powered Coachella? That's a future that alternative rocker Skylar Funk '10 hopes to see one day. Although there isn't a solar generator that is big enough to power the Coachella main stage yet—things are moving in that direction, says Funk.

As students in the environmental analysis program, Funk and classmate Merritt Graves '10 became passionate about environmental issues, and since founding Trapdoor Social together, they have combined their love of music with their sustainability activism. After driving around the country to play shows, Funk became frustrated with all the gas they were burning. So, in 2015, the band acquired a solar trailer that provides them with more than enough power for their concerts. "The real treat is that there is no loud generator which disrupts the whole sonic experience of the festival," says Funk.

In 2016, Trapdoor Social launched the fully solar-powered Sunstock Solar Festival in Los Angeles, a zero-waste event that also raises money for worthy causes. He adds, "We need a place, we need a positive space to cross-pollinate and to grow our movement and to be a community."

WITH RETIREMENT LOOMING, CHARLIE CRUMMER '59 DECIDED IT WAS TIME TO REINVENT HIMSELF IN HIS SPIRITUAL HOMETOWN.

Charlie 2.0

(THE PARIS VERSION)



STORY BY DAN CARLINSKY
PHOTOS BY ANTOINE DOYEN

IT WAS 2007.
He was pushing 70. He and his wife had separated, and he was about to retire. Pages in his life were turning. It was time, he decided, to flip ahead to the next chapter.

Now, 11 years later, Charlie Crummer '59, a one-time physicist in Southern California, lives in an apartment on the Île Saint-Louis, a quiet, mostly residential plot of land in the River Seine as it flows through the heart of Paris. He's an inch or two over six feet tall, his white hair mildly scattered, as Einstein taught us a physicist's hair ought to be. On the street, he winds a scarf around his neck, which isn't actually a municipal fashion ordinance in Paris but might as well be. Inside a quiet, simple neighborhood crêperie, he relaxes over lunch as he talks about how the seeds of his move from California to France had pretty much been sown long before he shipped out. About how, really, it all started with a car.

But not just any car.
"It was a 1966 Citroën DS," he says, smiling at the recollection. "Do you know it? A French classic. I'd been driving an old Chrysler—a real tank. I brought it to the repair shop and the owner had this '66 DS, a Pallas, which was the luxury model. He said 'Take it for the weekend and try it out.' Fifty miles later I was a raving convert. This was 1972. Riverside, California." ▸

For car guys back then, the front-wheel-drive Citroën DS was a dream vehicle, with self-leveling hydropneumatic suspension, power steering, disc brakes and other features that were, for the time, trophies of cutting-edge engineering and an oddly attractive space-age body design. A decade ago, a poll of 20 top automotive designers named the introductory version of the iconic vehicle—the 1955 model—“The Most Beautiful Car of All Time.”

“I kept that car for 13 glorious years,” Crummer continues, “until one day it ran out of water and the engine was damaged. We were going on vacation and drove it as far as Sacramento airport and it died. I left it in the airport parking lot for quite a while and then sold it to a Citroën aficionado. It was approaching 200,000 miles; all it needed was an engine overhaul. I dream that somewhere it’s still on the road. It was a work of engineering art.”

“Really,” he says, “it was because of the Citroën that I fell in love with France. I knew it in 1977, when we took a family trip to France—we were there just a week, less than a day in Paris. That was my first time in the country, but when we left... I can’t explain it, but I felt kind of homesick. It was like leaving my hometown.”

He especially connected with Paris—the soaring churches, the endless art, the streets and squares—but he didn’t go back for more than a quarter-century. When he did return at last, for a short stay in 2004, he found the city’s appeal was still there. He visited again the next year, and the next. It was after his separation in 2006 that he began to think seriously about moving there. Moving—you might say—to his spiritual hometown.

The following March 28, Crummer retired from his job as a physics lab manager at UC Santa Cruz. That same day, he was on a plane to Paris.

He brought along his two big lifelong passions: physics and jazz. (Ask him to name his major influences and he’ll start with Albert Einstein and Charlie Parker.) Both interests go back to his time at Pomona. A physics major (he later earned a Ph.D. in quantum gauge theory at UC Riverside), he was a versatile reed musician who played oboe in the orchestra as well as jazz on several members of the saxophone family. “I remember playing Dixieland on an exquisite gold-plated Selmer soprano sax owned by a professor in the music department,” he recalls. “That was ‘Doc’ Blanchard. To this day, I’m amazed he let me borrow such a valuable horn.”

It being the 21st century, among the first things Crummer did in his new Paris home was to establish a blog, so he could express an occasional thought about his new surroundings and a stray opinion about the world as he sees it. He headed his page:

**Charlie
in
France**

*Some thoughts and some pictures
Impressions of Paris and other random thoughts*

In his first blog post 11 summers ago, he celebrated the city’s parks and alleys and gardens. He responded emotionally to the sound of the great 19th-century organs in the churches of Saint-Sulpice and La Madeleine (“*Tears of joy well in my eyes, taking me by surprise. My heart swells in my throat and explodes with the passion of the moment*”). He reported briefly on visits to two jazz clubs. In one, a tiny bar ▷



“I REMEMBER PLAYING DIXIELAND ON AN EXQUISITE GOLD-PLATED SELMER SOPRANO SAX OWNED BY A PROFESSOR IN THE MUSIC DEPARTMENT. THAT WAS ‘DOC’ BLANCHARD. TO THIS DAY, I’M AMAZED HE LET ME BORROW SUCH A VALUABLE HORN.”



“I’M A LITTLE NERVOUS EVEN THOUGH THERE IS NO ONE ELSE AROUND. I CAN’T REMEMBER ANY TUNES SO I JUST PLAY SOME CHANGES. THE RIVER IS KIND. IT FLOWS ON.”

(“*about 4m by 8m, good beer, not so good sandwiches*”), the audience barely outnumbered the performers: There were, in total, three listeners, including Crummer; the band was a tenor sax player and a pianist (“*I listen to the sound of six hands clapping as they finish each tune*”).

And then: “*I took my clarinet down to the Seine the other evening. I found a place where I could sit alone. Carefully, I put the horn together and then paused. Who am I? An old guy sitting in rapture beside the ancient river ‘flowing under’ that has lived its life continuously since before the first man came there to receive its succor. I’m a little nervous even though there is no one else around. I can’t remember any tunes so I just play some changes. The river is kind. It flows on.*”

Crummer brought his clarinet and his alto sax to Paris; he left two other horns—a tenor and a baritone sax—behind. “A bari is too big,” he explains. “You can only take so much on a plane.” In a life reboot, wherever you go to, you take some of you along, you leave some of you behind.

To keep up his musical chops, Crummer downloaded a copy of the famous *Universal Method of Saxophone*, the sax man’s bible (“I had it as a kid”) for exercises. He started playing in a saxophone quartet. “The leader of our group is a tenor man who’s an economist,” he says. “He travels a lot, so we can’t rehearse regularly. We have a guy who doubles on soprano and alto, and I’m on second alto. The other two are the leader on tenor and another guy on bari. We play mostly jazz and tango. We have a terrific jazz chart by Gerry Mulligan, better than anything else I’ve seen from him. We also have great charts from Astor Piazzolla, the ‘nuevo tango’ composer.”

Not that joining a group means the end of his solo playing. “I look forward to the good weather,” he adds, “when I can walk down by the old coal ramp by the Seine and play, alone, next to the swans and ducks. It’s so romantic.”

His occasional blog entries, usually brief, are written at home or, on occasion, sitting on a bench in a park with a laptop and free wi-fi. He mentions musical events ranging from a solo balalaika concert to a quartet playing gypsy jazz in a church. He marvels at Paris architecture. He offers quick opinions on capitalism versus socialism (the way economist Milton Friedman uses them, they’re cartoon-like loaded terms, he argues, and “*Life isn’t a cartoon strip*”), on oil drilling and oil spilling (“*It’s time to just leave things alone down in the deep ocean*”), on gun deaths and the NRA (he’s very opposed), and on his kids (he’s very proud).

Lately, Crummer has also been guest blogging for a small not-for-profit publisher in San Francisco, which has appointed him its “Paris Bureau Chief.” Since he finds managing the French language an ongoing battle, he schedules weekly one-on-one sessions with a French woman in which they converse for an hour in French

and an hour in English. He’s a retiree apparently with no shortage of ways to keep occupied.

The physics part of his life came along to Paris mainly in the form of a paper that has been, typically for the scientific world, years in the making: “Aerodynamics at the Particle Level,” a continuation of work he began back in Santa Cruz. The paper—90-some pages long—explores the collision of fluids with solid surfaces from the particle perspective. It has been posted online for comments and suggestions from the scientific community; he’s revised it multiple times. “The way aeronautical engineers design a wing,” Crummer explains, “is to look at a bird and make a model and put it in a wind tunnel. We actually know a fair amount about just why things happen as they happen, although not enough. But engineers don’t care; they just want to make something that works. I want to know what’s behind the phenomenon.”

Considering all the elements of his Paris life, could he return to the States? That may depend on someone who entered his life soon after he arrived in Paris: Christine.

During his first month in the city, at the coffee hour after a regular service at the interdenominational American Church in Paris, he noticed a woman across the room. “She looked like a damsel in distress,” he recalls. “I thought ‘Uh-oh, that’s trouble’ but I went over and introduced myself. This is a church for Americans mostly, but she was French. She had an apartment to rent on the Île Saint-Louis, and she was there to post a notice on the church bulletin board.”

The woman was Christine, and as it turned out, she wasn’t trouble at all.

At the time, Crummer had a six-month rental arrangement across town, so he didn’t need the apartment Christine was looking to rent out, but when the six months ran out they moved together to her childhood home in a close suburb, where she was able to care for her aging mother. “If I hadn’t been religious when I came,” Crummer says, “I would have been converted just because of the magical things that have happened to me since I moved here.”

Eventually, they took over the apartment she had been looking to rent that day, the apartment on the Île Saint-Louis. The island is just a few hundred yards from the tourist hordes around Notre-Dame Cathedral yet light-years away on the serenity scale. “I’ve been all over the city by now,” Crummer says. “The Île Saint-Louis is the absolute best location I can imagine.”

“Christine would love to live in San Francisco—she’s thought about that for a long time. I might go back there with her. After all, she has a dream; she helped me realize mine, so what could be fairer? We might do six months and six months. There’s a lot to be worked out.”

He pauses a few seconds to reflect, then continues: “I’m thinking of the old saying: ‘Go with the flow.’ It’s all an adventure. We’ll see what happens.” **PCW**

THE STORY OF KATSUMA MUKAEDA AND FORMER POMONA PRESIDENT JAMES BLAISDELL OFFERS A CLEAR REMINDER THAT NO ONE HAS TO BE MERELY A SPECTATOR TO HISTORY.

THE SHADOW OF KOREMATSU

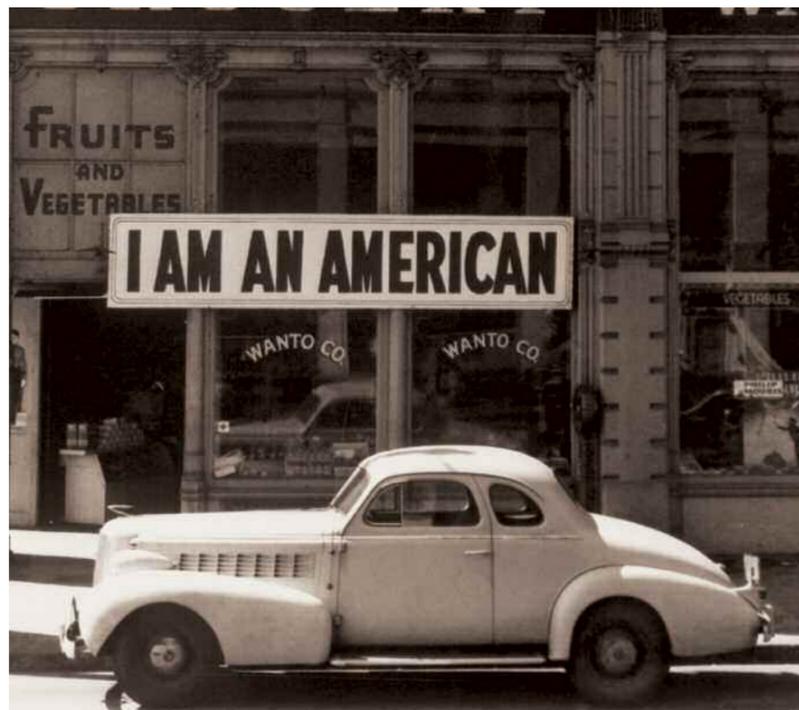
AN ESSAY BY JONATHAN VAN HARMELEN '17

Of the many divisive cases in U.S. legal history, few are as haunting as *Korematsu v. United States* (1944). In the ruling, the Supreme Court and Chief Justice Hugo Black argued that national security took precedence over individual liberties. And they maintained the legality of the infamous Executive Order 9066—which ordered the incarceration of more than 120,000 Japanese-Americans during World War II.

This decision has remained a stain on civil liberties ever since, and the June 26, 2018, Supreme Court’s reversal of *Korematsu* represents the first major victory since 1988 related to rectifying Japanese-American incarceration. However, by overruling *Korematsu* while approving President Donald Trump’s travel ban, the court has simply appropriated one tragedy to justify another. While Chief Justice John Roberts argued that President Donald Trump’s travel ban is legally different—and constitutional—in comparison to the *Korematsu* case, they both have the purpose of unjustly singling out individuals based on race. And although the subject of Japanese-American incarceration focuses on racial injustice towards U.S. citizens, it is also a story of immigration and how the U.S. government has employed racialized immigration policies under the vague guise of “national security.”

Even before camps like Manzanar existed for holding U.S. citizens of Japanese descent against their will, the FBI and the Immigration and Naturalization Service—the forerunner to ICE—had built their own camps to house Japanese citizens, often separating families in the process. Although Japanese immigrants had arrived in this country en masse since the 1870s, they were barred from naturalization. Long before U.S. involvement in World War II, the FBI under J. Edgar Hoover drafted extensive lists of so-called “disloyal enemy aliens” because of vague associations with Japan. While Germans and Italians were on this list as well, they numbered far less and always had the option to become U.S. citizens; Japanese immigrants would not share that opportunity until 1952.

The day after the attack on Pearl Harbor, the FBI conducted mass arrests of Japanese-American community leaders—sometimes in the middle of the night—and detained them in internment camps across the U.S. from Montana to Louisiana. Families often heard very little from their relatives in these camps, where their detainment lasted anywhere from a few months to several years. By 1943, the U.S. began a policy of deporting Japanese-Americans back to Japan as part of an exchange program with U.S. prisoners of war. On July 14,



1945, less than two months before the war’s end, President Harry Truman signed into effect a proclamation that permitted immigration officials to remove internees from the United States if they were deemed “a danger to the public peace.”

One man who faced such a scenario was Katsuma Mukaeda.

In 1908, he immigrated from Japan to the United States. According to his 1995 obituary in the *Los Angeles Times*, he distinguished himself as a law student at USC and established himself as a successful lettuce grower in Southern California and a prominent figure in L.A.

Despite being unable to practice law because he was Japanese, he worked as a paralegal supporting the Japanese community. He was a champion for improving race relations within the greater Los Angeles community, and in 1935 helped establish the Society of Oriental Studies at The Claremont Colleges. According to scholar Malcolm Douglass, the society was founded with the intention of making the

“Claremont Colleges the center of Oriental Culture on the Pacific Coast.” With help from a Rockefeller Grant, scholars at Pomona and Scripps worked alongside Mukaeda to establish a strong emphasis on Asian Studies, and provided the foundation to the Asian Studies Library at Honnold-Mudd Library. To many, Mukaeda was an ideal U.S. citizen who advocated greater civic engagement and mending the issues of society.

Yet because of his activism, the FBI decided he was the perfect target. On Dec. 1, 1941, Hoover recommended Mukaeda’s internment “in the event of a national emergency.” Within a week after Pearl Harbor, FBI agents detained him with hundreds of other Japanese merchants, Buddhist priests and community leaders in the Los Angeles County Jail. Although no evidence of treason or sabotage was ever produced, Mukaeda was nonetheless interned for being “a suspect.”



For years, he was shipped to various internment camps such as Camp Livingston, Louisiana, and Fort Missoula, Montana. By 1945, he found himself at Santa Fe Internment Camp, New Mexico, where a large number of internees were subjected to abuse by guards and sometimes received poorer treatment than enemy POWs in stateside camps. Following Truman’s proclamation, Mukaeda also found himself facing deportation back to Japan.

All the while, his family was separated from him. While Mukaeda was sent to one internment camp after another, his wife, Minoli, and son, Richard, were incarcerated at Poston Incarceration Camp in Arizona. When Minoli received word of the July 1945 deportation list that included her husband, she pleaded to the U.S. government and others for help, arguing that their only son “needs a father’s care now more than anything.” While researching Mukaeda’s FBI file at the National Archives as a part of my graduate studies in June, I found

dozens of letters of recommendation and support written to FBI officials, all testifying to his loyalty and future importance of mending relations between Japan and the U.S. The letter writers—mostly long-term residents of the Los Angeles area—ranged from close friends to *L.A. Times* publisher Harry Chandler and former Pomona College President James Blaisdell.

For President Emeritus Blaisdell, the story of incarceration was clear throughout Southern California. Shortly after the arrest of Mukaeda and the passage of Executive Order 9066, thousands of Japanese-Americans were herded into so-called “assembly centers” at the nearby Los Angeles County Fairgrounds and Santa Anita Racetrack. Three students from Pomona were also forced to leave campus due to the executive order, and were famously given tearful goodbyes by their fellow classmates. While the College itself did what many other universities did at the time—provide students with transfer options to East Coast schools—Blaisdell went further to help out his friend.

Throughout the years of Mukaeda’s internment, Blaisdell wrote multiple letters to the FBI reaffirming both the activist’s loyalty to the U.S. and his importance to the Los Angeles community based on his previous work with Pomona and Scripps, the only Claremont Colleges at that time. Blaisdell’s first letter of May 17, 1944, was sent to help secure Mukaeda a second hearing by the FBI. When the hearing did not clear his name, Mukaeda went back to Blaisdell for help. In a letter to the FBI in November 1945, Blaisdell praised Mukaeda as “a man, I believe, who can be of great usefulness in healing the relations between the two countries and establishing just and honorable relations between the Japanese and Americans in this country.” After a reappraisal of his case, Mukaeda was deemed loyal and freed from the Santa Fe camp in February 1946, after four years in detention separated from his family.

Following the passage of the McCarran-Walter Act in 1952, Japanese nationals were finally able to become United States citizens. A final attestation of their friendship was a letter from Blaisdell to Mukaeda dated June 3, 1953, congratulating him on becoming a citizen and proclaiming, “I only hope that we who have been native born will be worthy of you.” Mukaeda continued to be a champion for the Japanese-American community until his death on November 8, 1995 at the age of 104.

There are two important lessons from Mukaeda’s story. One is that foreign policy dictated by racism and the violent separation of families are both, sadly, a recent chapter in U.S. history. Immigrants of all backgrounds have participated in the building of our nation’s history, and a system focused on exclusion only harms ourselves.

When Mukaeda was being held captive by immigration officials and on the brink of being deported, there were Americans who stood up for him. Pomona’s mission as a college—while constantly evolving—has always focused, in part, on the importance of social justice and activism. Often we think of these stories as being driven by powerful figures that leave everyday people as mere spectators; in reality we all can play a role. Mukaeda’s story, and Blaisdell’s tireless support, remind us of our constant duty to support those victimized by unjust laws or systems such as our current immigration system—and of the ability we have to effect change.

Jonathan van Harmelen '17 is a graduate student at Georgetown University studying the comparative history of incarceration.

Thank You, Sagehen Community!

As we welcome the incoming Class of 2022 and kick off a new academic year, we would like to thank our worldwide family of alumni, families and friends for making 2017-2018 a vibrant year of support and communion for the Pomona community.

Last October, alumni and friends joined the campus community for the **Inaugural Ceremony**, including a barbecue and a dance party under the stars, to welcome Pomona's 10th president, G. Gabrielle Starr. Celebratory gatherings continued on campus throughout the year, as thousands of community members returned home for **Rivalry Weekend** in November—Sagehens beat the Stags to bring home the Sixth Street trophy—and revitalized editions of **Family Weekend** in February and **Alumni Weekend** in the spring.

Around the world, Sagehens traded stories and laughs at nine **Winter Break Parties** and 16 **Summer Welcome Parties** for incoming students and their families, and current Pomona scholars shared ideas with lifelong learners at **Pomona in the City** events in Seattle and Los Angeles. Our growing tradition of community goodwill, the **4/7 Celebration of Sagehen Impact** on April 7, featured 10 alumni volunteer service events from Claremont to London and Hong Kong in addition to the now-traditional campus and online celebrations of Sagehens bearing their added riches.

A **4/7 giving challenge** to benefit Pomona's Draper Center for Community Partnerships, the Student Emergency Grant Fund, the Alumni Scholarship Fund, and The Claremont Colleges' Empower Center yielded \$172,000 in support for students from more than 750 generous alumni and friends. And donors to **the Annual Fund** set a new record with a total of \$5,514,075 given, including gifts from more than 5,500 alumni whose contributions increased the College's giving participation for the first time in more than a decade.

47 loud, proud, resounding chirps to every single Sagehen who stepped up to support our community with your generosity and your presence. Thank you! Let's make 2018-2019 another year worth chirping about.

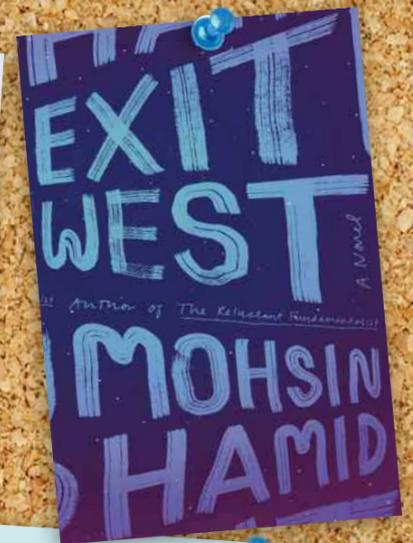


1. The Inauguration of President G. Gabrielle Starr
2. Alumni Weekend (for more photos see page 64)
3. Sagehens with the Sixth Street trophy on Rivalry Weekend
4. Summer Welcome Party in Miami, Fla.
5. Summer Welcome Party in Denver, Col.
6. 4/7 alumni volunteer event in Seattle, Wash.



Thank You, Alumni Board!

At the Alumni Board's final meeting of the year on June 9, **Matt Thompson '96** completed his term as Alumni Association President and passed the gavel to incoming president, **Diane Ung '85**. **Jon Siegel '84** was elected as president-elect. The following members completed their service: **Jordan Pedraza '09** (Past President), **LJ Kwak '05**, **Kyle Hill '09**, Professor **Lorn Foster** (Faculty Representative), **Slade Burns '14** (Admissions Representative) and **Maria Vides '18** (ASPC President). The following new members are joining the Alumni Board: **Jill Grigsby** (Faculty Representative), **Alejandro Guerrero '19** (ASPC President), and at-large members **Aaron Davis '09**, **Terril Jones '80**, **Jim McCallum '70**, **Jon Moore '86**, **Andrea Ravich '06**, **Alex Tran '09** and **Anna Twum '14**.



Summer/Fall Book Selection

This fall, join the Class of 2022 as they start their Pomona journeys by reading **Exit West**, a book *The Los Angeles Times* called "...a breathtaking novel by one of the world's most fascinating young writers." Named a Top 10 Book of 2017 by *The New York Times*, Mohsin Hamid's work follows two lovers displaced by civil unrest in their home country.

Mark Your Calendar

Save the dates for these favorite annual events and update your contact information at pomona.edu/alumniupdate to hear about more opportunities to come together with the Sagehen community.

- The Claremont Colleges Worldwide Socials—September 2018 and March 2019
- Rivalry Weekend—November 9 (dinner) and November 10 (game vs. CMS), 2018
- Winter Break Parties—January 2019
- Family Weekend—February 15–17, 2019
- 4/7 Celebration—April 7, 2019
- Alumni Weekend—May 2–5, 2019

Book Club Events

In-person Book Club events for the summer/fall selection began in August in Washington D.C., Seattle and Honolulu, with additional gatherings planned this fall in St. Paul, MN (September 21), Bedford Hills, NY (October 16) and Austin, TX (October, date TBD). Join the Book Club at pomona.edu/bookclub to learn more about events near you and to read along with alumni, professors, students, parents and staff around the world.

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[IN MEMORIAM]

Judge Stephen Reinhardt '51

(1931-2018)

Judge **Stephen Reinhardt** '51, a stalwart of the Ninth U.S. Circuit Court of Appeals in San Francisco who wrote the ruling that ultimately legalized same-sex marriage in California, died March 29, 2018, two days after his 87th birthday.

Known as the “liberal lion” of the federal circuit courts, he was fiercely passionate about the law and protecting the vulnerable. His rulings in defense of criminal defendants, minorities and immigrants were often overturned by the more conservative U.S. Supreme Court.

Among his rulings that the high court overturned were decisions that would have struck down Washington state’s ban on doctors providing aid in dying and a federal law prohibiting a type of midterm abortion that opponents labeled partial-birth abortion. Once, when asked if he was upset by these reversals, he replied: “Not in the slightest. If they want to take away rights, that’s their privilege. But I’m not going to help them do it.”

Born March 27, 1931, in New York as Stephen Shapiro, Reinhardt changed his name after his parents were divorced and his mother remarried. His stepfather was Gottfried Reinhardt, a screenwriter, director and producer whose films included *The Red Badge of Courage*. His grandfather, Max Reinhardt, was a theatre legend who fled Germany during Nazi rule and gained acclaim in the U.S. for his production of *A Midsummer Night's Dream* at the Hollywood Bowl.

Reinhardt once said that the horrors of the Nazis helped shape his conviction about the need to be vigilant in upholding human rights.

A graduate of Yale Law School, Reinhardt was

appointed to the federal bench in 1980 by President Jimmy Carter. He remained in that role until the time of his death. Previously, he had served as a first lieutenant in the legal counsel’s office of the Air Force, clerked for a federal judge, practiced entertainment and labor law in California, been a

member of the Democratic National Committee from California and served on the Los Angeles Police Commission.

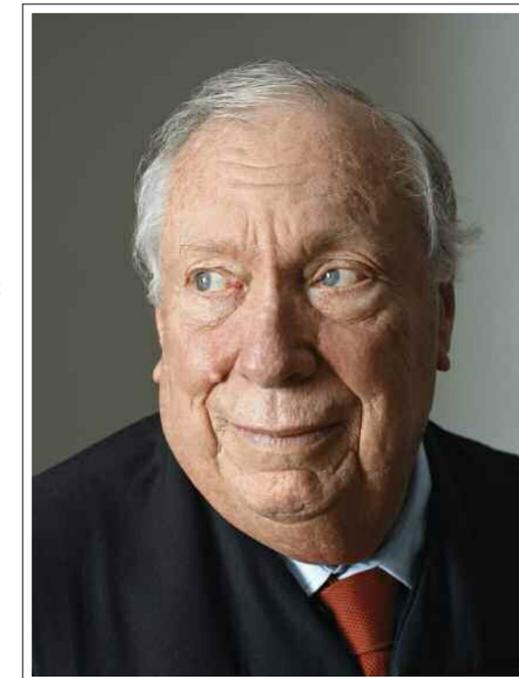
“We have lost a wonderful colleague and friend,” said Sidney Thomas, chief judge of the Ninth Circuit, which oversees federal courts in California and eight other Western states. “As a judge, he was deeply principled, fiercely passionate about the law and fearless in his decisions. He will be remembered as one of the giants of the federal bench.”

Two Supreme Court justices were among the many national voices that spoke admiringly of Reinhardt in the wake of

his death.

“As a person and as a judge, Stephen Reinhardt was devoted to protecting the powerless and the oppressed,” said Justice Anthony Kennedy, “In my 43 years on the bench few, if any, judges with whom it has been my privilege to serve were more dedicated to the cause of justice.”

Justice Sonia Sotomayor called him “one of the greatest legal minds of our lifetimes.” She went on to say, “We have lost one of the giants of our federal judiciary—one who cared deeply about the way the law could shape our society and impact our pursuit of justice. Someone like Stephen cannot be replaced. He set an example for judging that anyone with a passion for the good in the law should follow.”



**Class Notes
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Martha Andresen Wilder

1944–2018

It's safe to say that no Pomona faculty member has ever been more beloved among students and alumni than Emerita Professor of English Martha Andresen Wilder, who died on March 24 from multiple myeloma at the age of 74. Over the 34 years of her Pomona career, she was honored by the students themselves seven times with the coveted Wig Award for Excellence in Teaching, setting a record in the 60-plus-year history of the award that is unlikely ever to be surpassed. If she hadn't been ineligible for four years following each win, she probably would have garnered many more.

Former students remember her for her contagious enthusiasm, her love and thorough knowledge of the material, her always strikingly creative presentation and her deep warmth and kindness. "I can attest to the most luminous, powerful, soul-searching teaching I have ever seen," one student commented. "She awakens the heart," said another. "She gives the students a lesson plus the reasons for taking that lesson to heart."

She is remembered and revered in particular for her legendary Shakespeare classes, in which she was known for her "page to stage" approach, urging her students to experience the Bard's genius from every possible perspective—as readers, scholars, spectators and actors.

Inspired by the phrase "only connect," the epigraph from the E.M. Forster novel, *Howard's End*, she sought to make the works of Shakespeare relevant to the lives of her students. She would often take an ordinary phrase, like the first line from *Hamlet*—"Who's there?"—and lead her listeners through the process of parsing its many levels of meaning, transforming it into something profound, personal and unforgettable. She described the core of her approach as asking students not only for close textual and linguistic analysis of the Bard's words, but also "to 'take another's part,' to understand and inhabit the Other, always a leap of empathetic, theatrical and moral imagination."



As each semester came to a close, members of the college community would keep an eye out for her class's signature culminating exercise—a series of pop-up performances in which groups of students would present a scene from one of the plays, staged in a site of their choosing—from the likely (dormitory balcony) to the unlikely (among the dumpsters behind a dining hall). Many of her former students have called the process of interpreting, conceptualizing and

performing a scene from one of Shakespeare's plays, under her inspiration, one of the seminal experiences of their college career.

Referring to the fact that her Shakespeare classes were always waitlisted as students vied for the privilege of studying with her, Emerita Professor of English Thomas Pinney once dubbed her "the Pied Piper of the Pomona College English Department," remarking that, "we joke that she'd have to

turn away students if she were teaching the minor poems of John Lidgate."

A noted scholar of Renaissance literature with a special love for and expertise in the works of the Bard, she was the author of numerous published articles in scholarly journals and was a consultant for such projects as the BBC/TV series "The Shakespeare Plays" and the reconstruction of the Globe Theatre on its original London site. In addition to her famous Shakespeare classes, she taught a range of other courses through the years, including Milton, Major British Authors and the English Lyric Before 1700.

Born March 7, 1944 in Minneapolis, Minnesota to Karl and Elizabeth Andresen, she graduated from the University of Minnesota, *summa cum laude* and Phi Beta Kappa; and went on to receive her master's degree and doctorate in English from Yale University. She came to Pomona in 1972 after a two-year sojourn on the faculty of the University of Pittsburgh. For the final 16 years of her career at Pomona, she held the distinguished title of Phebe Estelle Spalding Professor of English.

In 1992, she was chosen by the Council for Advancement and Support of Education to be the California Professor of the Year and by Baylor University as the recipient of the Robert Foster Cherry Award for Great Teaching. In 2000 she was elected a Fellow of the Radcliffe Center for Intellectual Renewal.

A compelling public speaker, Martha was sought after by groups across the country and over the years presented well over 500 public lectures. She was in demand for alumni events throughout her tenure and after her retirement. Although her subjects were drawn primarily from Shakespeare and his plays, three of the talks she gave in the last years of her life illustrate her remarkable range: at the LA Arboretum, "Shakespeare's Gardens and Green Worlds;" for the American Association of University Women, "Isn't Wonder Woman Still Among Us?" inspired by her reading of Jill Lepore's recent history; and at a Gala for the City of Hope Foundation, a personal meditation on the transformation and transmutation she had experienced as a patient, and the way she had come to understand it and to take solace from Shakespeare's explorations of those states.

Arthur Horowitz

1945–2018

Professor of Theatre Arthur Horowitz, who retired last spring after 14 years on Pomona College's theatre faculty, passed away suddenly in New Orleans on June 16, at the age of 73.

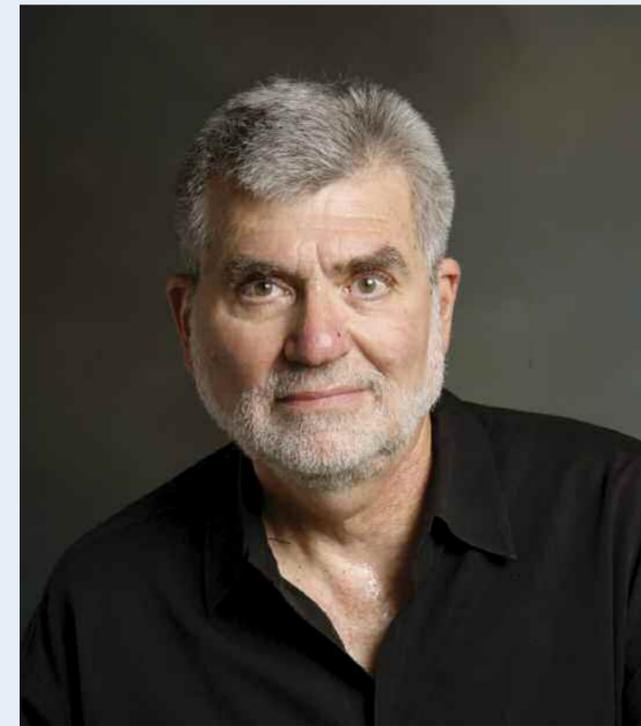
Students who took Horowitz's classes or took part in the plays he directed described him as kind, generous, funny, inquisitive and always creative. At Pomona, he taught theatre history, playwriting and dramaturgy and was an expert on the dramaturgy of Anton Chekhov and Carlo Goldoni. He also had research interests in the performance vocabularies of commedia dell'arte, Russian biomechanics and Shakespeare in performance, with particular emphasis on international, non-English-language adaptations of the Bard's work.

In 2011, Horowitz was awarded a grant from the Folger Institute for Shakespeare Studies National Endowment for the Humanities Institute Project, "Shakespeare from the Globe to the Global," which culminated in the "Shakespeare in Performance Syllabus," a prototype for courses in international Shakespeare. During his 2017–2018 sabbatical year, he conducted research on the common dramaturgical and emotional threads linking the characters and relationships in Chekhov's works and those in the late plays of Goldoni.

A graduate of Hofstra University, he earned his Ph.D. from University of California, Davis, in 1997 after 20 years teaching high school English. Before joining the Pomona faculty as assistant professor in theatre in 2004, he taught at CalArts, UC Santa Barbara and Cal Poly Pomona. Serving 14 years on the Pomona faculty, he was named associate professor in 2010.

His writing was published in such publications as *The Journal for Cultural and Religious Theory*, *Contemporary Drama-*

tists, *New England Theatre Journal*, *The Journal of Beckett Studies*, and *Western European Stages*. His book *Prospero's 'True Preservers': Peter Brook, Yukio Ninagawa, and Giorgio Strehler—International Post-World War II Directors Approach to Shakespeare's 'The Tempest'* was published by the University of Delaware Press in 2004, and



his chapter, "Scrutinizing the feminine in Waiting for Godot," recently appeared in *In Dialogue with Godot: Waiting and Other Thoughts*.

Horowitz was involved in numerous theatrical productions in Southern California, working as dramaturge for several companies, such as the Unknown Theater and the Bootleg Theater in Los Angeles and A Noise Within Theatre in Pasadena. He directed a production of Macbeth for the Ojai Shakespeare Festival in 2004, and was on the Board of Directors of Unknown Theater from 2005 until 2011.

[LAST LOOK]



ALUMNI WEEKEND 2018



Alumni Weekend brought together more than 1,500 alumni and guests for four festive days in late April. Friday's craft beer and wine tasting—A Taste of Pomona—featured alumni vintners and led into dinner under the stars on Marston Quad. President G. Gabrielle Starr welcomed attendees, saying, “All of you have brought a brilliance and energy to the College from which we still benefit. It’s the Pomona of today that honors you for coming back and honors the past, even as we are thinking about the future.”

Throughout the weekend, Sagehens from the classes of 1949 through 2017 crisscrossed campus to hear faculty and alumni speak on topics including St. Francis of Assisi, international education, California wildfires and the future of astronomy. The Parade of Classes marched through the College Gates to the Quad, where alumni were greeted by President Starr’s State of the College. The Class of 1968 gathered in full force for their 50th Reunion, just three years after initiating a new Pomona tradition with their 47th Reunion, and the Class of 1988 celebrated their record-setting reunion gift of \$380,431. In total, reunion classes contributed over \$1.4 million in support of Pomona’s liberal arts mission and commitment to financial accessibility.

Alumni Weekend 2019 will take place May 2-5. You can find information to plan your trip at www.pomona.edu/alumniweekend.





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